MASTER
NEGATIVE
NO. 94-82248-6

COPYRIGHT STATEMENT

The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted materials including foreign works under certain conditions. In addition, the United States extends protection to foreign works by means of various international conventions, bilateral agreements, and proclamations.

Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specified conditions is that the photocopy or reproduction is not to be "used for any purpose other than private study, scholarship, or research." If a user makes a request for, or later uses, a photocopy or reproduction for purposes in excess of "fair use," that user may be liable for copyright infringement.

The Columbia University Libraries reserve the right to refuse to accept a copying order if, in its judgement, fulfillment of the order would involve violation of the copyright law.

Author:
Butterbaugh, Wayne Edgar
Title:
Industrial traffic management
Place:
Washington, D.C.
Date:
1930

94-82218-6
MASTER NEGATIVE #

COLUMBIA UNIVERSITY LIBRARIES
PRESERVATION

BIBLIOGRAPHIC MICROFORM TARGET

ORIGINAL MATERIAL AS FILMED - EXISTING BIBLIOGRAPHIC RECORD

BUSINESS
235
B98

Butterbaugh, Wayne Edgar.

... Industrial traffic management: a survey of its relation to business, by Wayne E. Butterbaugh, commercial agent, Transportation division. Washington, U. S. Govt. print. off., 1930.

viii, 172 p. incl. map, tables, diagrs., forms. 25cm. (U. S. Bureau of foreign and domestic commerce (Dept. of commerce) Domestic commerce series, no. 39)

At head of title: U. S. Department of commerce. R. P. Lamont, secretary. Bureau of foreign and domestic commerce. William L. Cooper, director ...

1. Shipment of goods. 2. Business. I. Title.

Library of Congress HF5761.B8
Copy 2. [3]
31-26239 /2
658.7881

RESTRICTIONS ON USE:

TECHNICAL MICROFORM DATA

FILM SIZE: 35mm REDUCTION RATIO: 12x IMAGE PLACEMENT: IA (IIA) IB IIB

DATE FILMED: 10-17-94 INITIALS: PB

TRACKING # : MSH 02804

FILMED BY PRESERVATION RESOURCES, BETHLEHEM, PA.

2.0 mm ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz1234567890

1.5 mm ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz1234567890

PM-MGP 13″x18″
METRIC GENERAL PURPOSE TARGET
PHOTOGRAPHIC

200 mm

150 mm

100 mm

1.0

1.1

1.25

1.4

1.6

1.8

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz1234567890

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

1.0 mm

1.5 mm

2.0 mm

2.5 mm

A5

A4

PRECISION℠ RESOLUTION TARGETS

Century

A&P

1303 Geneva Avenue
St. Paul, MN 55119

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

4.5 mm

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz1234567890

3.5 mm

Cop. 1

INDUSTRIAL TRAFFIC MANAGEMENT

A SURVEY OF ITS RELATION TO BUSINESS

by

Butterbaugh

U. S. DEPARTMENT OF COMMERCE
BUREAU OF FOREIGN AND DOMESTIC COMMERCE

D235 B98 cop. 1

Columbia University
in the City of New York

LIBRARY

School of Business

U. S. DEPARTMENT OF COMMERCE
R. P. LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L. COOPER, Director

Domestic Commerce Series—No. 39

INDUSTRIAL TRAFFIC MANAGEMENT

A SURVEY OF ITS RELATION TO BUSINESS

BY

WAYNE E. BUTTERBAUGH
Commercial Agent, Transportation Division

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1930

For sale by the Superintendent of Documents, Washington, D. C. - - - Price 30 cents

Bus.

D 235
B98

APR 5, 1951
ASP 17

CONTENTS

	Page
Foreword	VII
Chapter I.—Introduction	1
Purpose of the study	2
Value of the survey	2
Scope of the report	3
Findings and conclusions	4
Chapter II.—Kinds of traffic organizations	8
Carrier traffic departments	9
Industrial traffic departments	9
Commercial traffic departments	9
Community traffic departments	10
Trade-association traffic departments	10
Public traffic bureaus—Professional services	10
Government traffic departments	11
Cooperative traffic organizations	12
Classification of industrial traffic departments	13
Kind of business or industry	13
Kind of functions handled	13
Kind of organization	15
Kind of control	18
Chapter III.—Place of traffic administration in business	20
Traffic organization problems different for each shipper	20
Traffic work must be understood and supported	20
Traffic-department personnel problems	21
Standards for measuring efficiency	22
Other advantages that would accrue	23
Types of businesses requiring traffic administration	24
Concerns having little or no traffic	24
Concerns having some traffic	25
Concerns having considerable traffic	25
Factors determining the need for traffic administration	26
Number of firms maintaining traffic departments	26
Traffic departments in the various industries	27
Traffic manager's place in company organization	30
Jurisdiction over traffic activities:	
Department responsible	31
Official responsible—	
In firms having traffic departments	31
In firms not having traffic departments	32
Chapter IV.—Functions of industrial traffic departments	33
Industrial traffic functions classified	33
Traffic administrative functions:	
Administrative functions relating to inside contacts	34
Administrative functions relating to outside contacts	34
Traffic cost functions	35
Traffic service functions	35
Physical-handling functions	36
Transportation, storage, and communication functions	36
Assignment of functions for handling	37
Job analysis	40
Centralizing traffic functions	44
Typical situation where traffic functions are not centralized	45
Results from centralizing traffic functions	46
Chapter V.—Control and distribution of traffic functions	49
Departmental control over traffic functions	49
Traffic department	50
Production department	50
Executive department	51
Shipping department	52

Chapter V.—Control and distribution of traffic functions—Continued.
Departmental control over traffic functions—Continued. Page
Sales department 53
Office department 53
Purchasing department 53
Accounting department 53
Legal department—Other departments 53
Specific distribution of traffic functions 54
Control over traffic administrative functions 54
Administrative functions relating to inside contacts 55
Administrative functions relating to outside contacts 55
Administrative functions relating to traffic costs 56
Administrative functions relating to physical handling 57
Administrative functions relating to transportation facilities 58
Control over traffic cost functions 60
Control over traffic service functions 61
Control over physical handling functions 63
Control over transportation functions 65
Résumé of departmental control of traffic functions 67
Chapter VI.—Reasons given for having traffic administration 69
General necessity 69
Necessary to the operation of the business 70
To accomplish savings 71
To eliminate waste 72
To render service 73
Because of demonstrated value 74
Chapter VII.—Reasons offered for not having traffic administration 76
The general situation surrounding the business 77
Nature of the business 77
Size of the business 78
Need not apparent 78
Time not appropriate 79
The general organization policy of the business 79
Full time of one man unnecessary 79
Separate department unnecessary 80
Duties can be handled by other employees 80
Outside traffic help used 81
The specific traffic situation surrounding the business 84
Small volume or number of shipments 84
Size of shipments 84
Character of the movement 84
Rate situation 85
Carrier agencies used 86
The general administrative policy of the business 87
Basis of purchase and sales contracts 87
Cost of traffic administration thought excessive 87
Chapter VIII.—Cost of industrial traffic administration 89
Relation of transportation costs to total expenses 89
Limitations on the interpretation of the data 90
Total expenditures for transportation 91
Transporting costs 95
Packing and shipping-container costs 97
Plant-transportation and materials-handling costs 98
Cost of traffic and transportation administration 100
Traffic department salaries 107
Traffic managers' salaries 107
Savings resulting from traffic administration 112
Sources of money returns 112
Money returns as an index of traffic-department efficiency 114
Rate and classification adjustment returns 114
Claim collections 115
Savings impossible to measure 115
The cost of adequate traffic administration 116
Factors to be considered 118
Chapter IX.—Relation of size of business to traffic administration 119
The factor of size 119
When is a business small? 120

Chapter IX.—Relation of size of business to traffic administration—Con. Page
Does the small business need traffic administration? 120
Is the cost prohibitive for the small concern? 121
How do small firms handle their traffic? 122
By not attempting to "manage" traffic 122
By managing only a few traffic activities 123
By managing all traffic functions themselves 123
By using outside traffic organizations 124
Carrier traffic departments 124
Public traffic bureaus 124
Community and trade-association traffic bureaus 125
Is traffic administration profitable to the small concern? 126
What size business justifies a separate traffic department? 126
Chapter X.—Results from interdepartmental cooperation 128
The value of interdepartmental cooperation 128
Results in savings and the elimination of waste 129
Executive and traffic department relations 129
Traffic department authority 130
Adjusting production and marketing to traffic 131
Plant location 132
Finance and traffic department relations 132
Financing 132
Budgeting 133
Insurance and bonds 133
Credits and collections 133
Auditing 134
Receiving money 135
Legal and traffic department relations 135
Character of traffic law activities 136
How cooperation is rendered 136
Accounting and traffic department relations 137
Furnishing information 137
Preparing documents, reports, and statistics 138
Keeping accounts 138
Auditing bills and invoices 139
Miscellaneous matters 141
Office and traffic department relations 141
Order and traffic department relations 142
Personnel and traffic department relations 142
Official-business service 142
Purchasing and traffic department relations 143
Before purchasing orders are placed 144
Before purchases are shipped 145
After purchases are shipped 146
Actual purchasing of goods 147
Foreign purchases 147
Production and traffic department relations 149
Engineering, planning, and experimenting 149
Production costs 150
Stores and stock 150
Materials handling and plant transportation 151
Manufacturing 151
Packing 153
Loading 153
Advertising and traffic department relations 154
Sales and traffic department relations 155
Consultation 155
Research 156
Information 157
Services performed 160
Customer relations 163
Selling 165
Appendix:
Traffic, transportation, and shipping terms defined 167
Questionnaire No. 1: Industrial traffic management survey 169
Questionnaire No. 2: Industrial traffic department survey 171

LIST OF TABLES

		Page
Table 1.	Proportion of firms maintaining traffic departments	27
Table 2.	Administrative control over industrial transportation equipment	59
Table 3.	Typical cost sheet	90
Table 4.	Total transportation expenses compared with total expenses	92
Table 5.	Percentage relation of total transportation expenses to total expenses in large concerns	93
Table 6.	Same, in medium-sized concerns	94
Table 7.	Same, in small concerns	95
Table 8.	Transporting costs compared with total expenses	96
Table 9.	Transporting costs compared with total transportation expenses	96
Table 10.	Packing and container costs compared with total expenses	97
Table 11.	Packing and container costs compared with total transportation expenses	98
Table 12.	Plant-transportation and materials-handling costs compared with total transportation expenses	99
Table 13.	Plant-transportation and materials-handling costs compared with transporting costs	100
Table 14.	Traffic administration costs compared with total expenses	101
Table 15.	Total traffic receipts compared with traffic administration costs	102
Table 16.	Traffic administration costs compared with total transportation expenses	102
Table 17.	Traffic administration costs compared with transporting costs	103
Table 18.	Traffic managers' salaries compared with traffic administration costs	103
Table 19.	Traffic administration costs compared with traffic managers' salaries	104
Table 20.	Salaries of traffic employees	105
Table 21.	Relative position of traffic manager's salary	108
Table 22.	Traffic managers' salaries compared with total expenses	108
Table 23.	Traffic managers' salaries compared with total transportation expenses	109
Table 24.	Traffic managers' salaries compared with transporting costs	109
Table 25.	Transporting costs compared with traffic managers' salaries	110
Table 26.	Traffic managers' salaries compared with total traffic receipts	110
Table 27.	Total traffic receipts compared with traffic managers' salaries	111
Table 28.	Average salary paid traffic manager by large concerns	111
Table 29.	Relation of money returns to traffic costs	113
Table 30.	Total traffic receipts compared with total transportation expenses	114

FOREWORD

The Associated Traffic Clubs of America urged the Department of Commerce to undertake a survey of traffic management in the United States, pointing out that unnecessary industrial waste is going on in business in connection with the traffic, transportation, and shipping functions. The cooperation of such organizations as the Associated Traffic Clubs of America, the National Industrial Traffic League, chambers of commerce, and the regional advisory boards of the American Railway Association was offered.

In compliance with this request, the department, through the Domestic Commerce and Transportation Divisions of the Bureau of Foreign and Domestic Commerce, undertook a research into the causes of industrial waste associated with traffic management—a national survey of industrial traffic management as it pertains to various fields of activity and as conducted by establishments of various sizes, the nature of this phase of business administration, its place, purpose, organization, control, functions, and cost. Transportation costs in the average business, it developed, account for as much as 25 per cent of the total expenditures; in some, for a great deal more than this. Clearly, then, there is need for a broad and accurate conception of the importance of traffic management in the industrial structure.

There has been an absence of information concerning the general practices of business establishments in the organization of traffic departments and the delegation of work to them for direct supervision or advisory control which has prevented the formulation of general principles governing traffic matters; yet, unless sound conceptions of the jurisdiction of the traffic department and its relationship to industry are held by those directing a business, its work will be only partially successful. The findings in this report should, therefore, be of value both to enterprises with and to those without traffic departments, and to trade and community associations, regulatory bodies, carriers, and others interested in the economical and efficient handling of goods, for there is embodied in it authoritative information not previously available. The report does not attempt to discuss in detail every traffic activity nor to list every opportunity for waste or saving; its value lies in the many avenues for thought and study which it opens up.

The fine spirit of cooperation that marked the making of this survey is exemplified in the willingness with which firms told of past errors or wastes—later corrected through proper traffic management—in order that others might benefit therefrom in the future. The bureau is deeply grateful for cooperation of this highly constructive character.

The report is unique in that, through giving the exact language of questionnaire replies from actual users of transportation, it presents

a cross-section of present-day thought on industrial traffic administration. The bureau can not, of course, assume responsibility for the individual views quoted.

The report, written by Wayne E. Butterbaugh, professorial lecturer on transportation in the University of Minnesota, was prepared under the general supervision of A. Lane Cricher, chief of the transportation division of this bureau. Acknowledgment is made of the valuable assistance rendered the author by Jacob Levy in the preparation of the manuscript.

WILLIAM L. COOPER, *Director*,
Bureau of Foreign and Domestic Commerce.

NOVEMBER, 1930.

INDUSTRIAL TRAFFIC MANAGEMENT

A SURVEY OF ITS RELATION TO BUSINESS

CHAPTER I

INTRODUCTION

Business men of the passing generation have bent their efforts mainly toward solving the problems of production and manufacture. Astonishing results have been achieved in cutting production costs in the extracting and converting industries. These savings have been brought about by policies covering the specialization and division of labor, large-scale operations, modern methods, and continual improvements and inventions in machinery. America has in consequence attained forefront industrial rank.

In this development other phases of business have not always received the same thought and effort. Attention has been diverted from the fact that each field of business management must be scientifically developed, and to an equal degree, or the gains made in one branch may be lost in another; for the long chain of handlings and movements between original production and ultimate consumption provides many opportunities for waste.

Production gains often are lost to a considerable extent when the goods are assembled and distributed. Without apparent justification, the cost of physical distribution (transportation) sometimes actually exceeds the cost of production.

Many new methods have been adopted to cut the cost of distribution. Certain of these deal with what may be termed the marketing phases of distribution—purchase and sale—as illustrated by the development of mail-order houses, chain stores, serve-yourself stores, and cooperative purchasing and marketing exchanges. Improvements have related not only to the methods of buying and selling, but to the financing of commercial transactions, as illustrated by partial-payment plans.

But what about "physical distribution"? Has it kept pace? In a great many companies the physical phases of distribution, including such matters as packing, materials handling, receiving, storing, transporting, and shipping, have been highly developed. Individual enterprises and in some cases entire trades have long since come to appreciate the advantages of intelligent administration as applied to traffic activities.

It is generally recognized that the physical-assembling and physical-distributing phases of business—that is, traffic, transportation, and shipping—have all too often been neglected by otherwise well-managed enterprises. As will be pointed out, this is wasteful; and it is primarily to aid such concerns that this report has been prepared.

PURPOSE OF THE STUDY

Recognition of the need for a general survey of the industrial traffic management situation came from a realization of the general lack of understanding of the importance of transportation matters and of traffic work. Because of the technical nature of traffic work an intimate acquaintance with it is a prerequisite to its proper understanding and direction. It is now at a stage of development where it needs intensive study, research, analysis, and interpretation. As the Secretary of Commerce outlined in his annual report for 1928:

> A searching inquiry is being made of existing traffic organizations, including not only traffic departments of individual concerns, but also cooperative traffic bureaus maintained by groups of shippers, as well as other forms of traffic organizations connected with chambers of commerce or for hire. It is proposed to determine the functions and cost of such departments so that bulletins may be published setting forth the findings for the benefit of executives in charge of the management of industrial and commercial establishments. Other bulletins will be published describing traffic management for individual industries. Thus, an executive will have called to his attention the savings possible by this system of management, and he will be supplied with information concerning the proper proportionate cost of such a department and the functions that he should require of its staff. This information will relate to traffic management generally and also specifically to the particular industry.

A further reason for undertaking the survey was a belief that waste was resulting to industry from this lack of understanding. Accordingly, a considerable portion of the survey was devoted to a scrutiny of such waste in connection with the receiving and distributing functions of business.

A final factor suggesting the need for a study of this character was the lack of authoritative information on the subject. Little was available other than individual experience and hearsay. It was the belief of many, as indicated by their responses, that the survey would tend to correct this inadequacy; that reports based thereon would benefit traffic managers and the traffic profession, industrial concerns needing, considering, or maintaining traffic departments, trade associations, and industry in general.

VALUE OF THE SURVEY

The benefits expected to accrue from this study to those engaged in traffic work were thus summed up by the traffic director of a pulp and paper trade association:

> Herein lies the golden opportunity to assist in the elevation of traffic management and the traffic manager to that high level of recognition and respect to which the importance of the work and the integrity of the men employed therein are entitled.

A large chemical company has the following definite idea of the value of such an investigation to the traffic profession:

> The field of traffic management should be placed on the same plane as certified public accountants, engineers, etc., for traffic management is just as much a profession as accountancy, engineering, or architecture.

As to business firms not having traffic departments but needing traffic administration, a New Jersey company writes:

> The study you are making will be of great value not only to the traffic profession but more so to the manufacturers who do not understand what traffic supervision can do for them in reducing costs and meeting competition.

> Without a doubt this study will be of great value to executives and business in general, because at the present time there seems to be a lack of understanding on the part of many shippers and receivers as to the functions of a traffic department.

Even the questionnaire, taken alone, was found of interest. A Pennsylvania radiator manufacturer stated: "Your various forms accompanying letter have been examined, and we are quite sure they will be of great value to us in analyzing ourselves."

Concerns planning traffic departments are looking for help from the study. A California sugar refinery writes: "We are awaiting the result of your investigation and hope to build a department along the lines that appear more effective than our present methods." Industries already having traffic departments also expect to benefit.

It was with these objects in mind that the Government, with the generous assistance of hundreds of business executives, undertook this national survey of the industrial traffic management situation.

SCOPE OF THE REPORT

This report is confined to the traffic and transportation activities of shippers and receivers as they pertain particularly to the handling of commodities moved via materials-handling devices, railways, waterways, highways, and airways; also to the storage, communication, and passenger requirements of business enterprises. It can thus be said to deal with the economic place of industrial and commercial traffic management in the various business institutions of the United States.

The report is in no way intended to represent a census of industrial traffic departments; that is, there has been no attempt to get in touch with all business establishments, to determine how their shipping is handled and whether or not they have traffic departments under the charge of competent traffic managers. Instead, the report is intended to furnish a bird's-eye view of the traffic organization of American business in general and to set forth the pertinent factors connected therewith. It represents "samples," carefully taken, to illustrate how producing, manufacturing, and marketing concerns look after their shipping activities, in the more important industries. In other words, it attempts to present, in a broad way, a cross section of the traffic, transportation, and shipping arrangements of American business enterprises.

The report has been prepared to answer the following questions:

1. What is the significance of the terms "traffic management" and "traffic department"? What are the various kinds of traffic organizations?
2. What is the place and relative importance of the traffic department in the modern business organization? What types of business enterprises have need for traffic management?
3. What are the functions of industrial traffic departments?
4. How are the traffic functions controlled? How distributed among the different departments?
5. What reasons are offered (*a*) for having and (*b*) for not having traffic administration?

6. How much should a business spend in order to secure adequate traffic administration?
7. How large should a business be in order to justify the segregation of its traffic activities into a separate traffic department?
8. What wastes result from an inadequate attention to or understanding of traffic matters? And how are wasteful shipping practices being eliminated?

This, it will be noted, does not cover fully the field of inquiry outlined by the Secretary of Commerce. Additional and more specialized studies will be required to describe the traffic-management situation for individual industries.

FINDINGS AND CONCLUSIONS

The groundwork of this survey was a questionnaire mailed to representative firms of all kinds, sizes, and fields of activity. Study and careful analysis of the hundreds of replies received permit the drawing of certain conclusions:

1. In considering the subject of traffic management it is necessary to understand, first of all, the meaning of the various traffic and transportation terms and the scope of the various kinds of traffic associations, bureaus, commissions, committees, and departments.

2. The place of traffic administration in business varies, it being better established in certain industries, in certain branches of particular industries, and in certain cities and sections of the country, than in others. It can, however, be broadly outlined as follows:

It is a major phase of business activity;
It is a vital managerial activity;
It means traffic "management"—not traffic "department";
It is basic and fundamental to the elimination of industrial wastes incident to transportation;
It is found in all industries, in all kinds of business, and in enterprises of all sizes; and
It is recognized as indispensable to large concerns, although not always properly evaluated.

From the standpoint of personnel, traffic administration is in need of—

More capable executives;
Professional interpretation not only in educational institutions devoted to business training, but in business itself;
Moral and financial support in the business institutions where it has already been established; and
A method for measuring and recognizing traffic ability.

The need for traffic administration can not be measured solely by (*a*) the number of employees, (*b*) the number of shipments, (*c*) the tonnage handled, nor (*d*) the total capitalization, but by a combination of these characteristics. The small size of a business alone does not exclude it from scientifically managing what traffic it has. The types of business establishments especially requiring traffic administration and well-organized traffic departments appear to be—

Those handling perishable or semiperishable commodities.
Those handling bulk commodities.
Those handling a large volume of traffic.
Those handling a large number of shipments.
Those handling a small volume of traffic and a large number of shipments; or handling a small number of shipments and a large volume of traffic.
Those handling goods of high value.
Those handling goods having a high transportation cost represented in their sales value.
Those in which transportation service is vital to the success of the enterprise.

3. Traffic functions are broad in scope and large in number. They can, however, be grouped under the five general headings of administrative functions, cost functions, service functions, physical handling, and transportation.

4. The handling of certain traffic functions often is assigned to departments wholly independent of the traffic department; or traffic activities may be combined with others—purchasing, sales, credit, accounting—and jointly administered. Traffic control completely centralized in a traffic department appears to be excellent policy and should be encouraged.

5. The principal arguments advanced in favor of maintaining an industrial traffic department are—

That it is a part of and necessary to the operation of a business;
That it eliminates waste and accomplishes savings the definite measurement of which proves the department to be profitable;
That it renders many valuable but unmeasurable services to all departments which alone justify its maintenance; and
That its value becomes evident when a comparison is made of conditions within a business prior to and following its establishment.

The major reasons given for not having traffic administration or an established traffic department are—

That the general situation surrounding a business does not require it, due to the nature, size, or apparent need of the business.
That the general organization policy of the business makes a traffic department unnecessary.
That the specific traffic situation surrounding the business does not justify it.
That the general marketing policy of the business makes traffic administration unnecessary.

Practically every large concern and most of the medium-sized ones participating in this survey have traffic administration. It is the small establishment that tries to operate without traffic management—generally because the need for it is not fully realized and because of the cost factor.

6. The cost of traffic administration varies with the kind and size of the business, the attitude of its executives toward traffic work, the ability of the traffic manager, and other factors.

The most important and effective of all transportation expenditures are made for traffic managerial salaries. Traffic managers' salaries average $3,636 for businesses of all sizes, and range from $900

to $15,000 and above. (See Table 20, p. 105.) The salaries of the lesser traffic employees appear to be comparable with those paid employees in the other departments of a business.

The amount that should be spent for traffic administration by any particular firm may be determined from a knowledge of: The total transportation bill; past accomplishments in recovering moneys erroneously paid out for transportation services (for example, overcharges); the possibility of recovering such moneys in the future and, more especially, of preventing leaks of this kind; and the "unmeasurable" value of services performed. Traffic departments usually show a profit from their operations—the average for the larger concerns is well over 300 per cent.

Money returns alone may justify the operation of a traffic department, but measurable results tell only a part of the story. Traffic departments merit their establishment, in many cases, because of the services performed for the business as a whole. Such services can seldom be measured in dollars and cents.

Traffic and transportation costs should be predetermined for budgeting purposes; this can be accomplished by keeping the proper accounts. The heaviest transportation expenditures usually are made for transportation services performed by carriers, transportation services performed by the company itself, packing, and materials handling. Expenditures for packing are very important, amounting in certain businesses to more than the cost of actual transportation. Outlays for materials handling and plant transportation seldom are known because they seldom are separately accounted for, but they are believed to represent larger sums, in many instances, than any other group of transportation costs.

7. The need for traffic administration is not dictated by the size of the business. Administration of traffic is necessary regardless of the amount of shipping. Size does, however, affect a firm's need for a separate traffic department and the sum it can allot for traffic work.

The cost of traffic administration, like the cost of all phases of business administration, bears down most heavily upon the small concern. The problem of the small enterprise, therefore, is to secure adequate traffic administration at a cost within its means.

To maintain its own traffic department, or even a full-time traffic manager, is not only unnecessary but impossible for the firm doing a small volume of business. Consequently for these firms capable traffic administration—like capable legal counsel, medical aid, accounting or financial assistance—is only to be had from the outside. The services of outside traffic bureaus are available to the small shippers of every commodity. While such assistance must be selected with care, it solves the problem of the small concern.

Traffic administration of some kinds and to some extent can safely be delegated to an outside service bureau for handling; but at the same time some executive within the business should understand the concepts of traffic administration in order intelligently to follow and check the work of the outside agency.

8. Economic wastes incident to industrial shipping very frequently result from a lack of cooperation, coordination, and basic understanding between the several departments comprising a business.

Interdepartmental cooperation, coordination, and understanding concerning traffic and transportation matters can be obtained by—

- Employing a capable traffic manager and establishing a well-organized traffic department;
- Vesting in the traffic manager broad powers and jurisdiction over all the centralized traffic functions;
- Supporting the traffic department financially and morally;
- Creating an understanding on the part of the other departments regarding the matters in which the traffic department can be of assistance to them; and
- Establishing an understanding by the other departments of the jurisdiction of the traffic department over the decentralized traffic functions, and the nature of its control—that is, whether direct, supervisory, consultative, or merely informational.

Wastes due to a lack of traffic management may not wreck a business, but they remain a loss to society. One of the most successful traffic departments in the country lists

- failure to get the proper rates on commodities shipped;
- failure to take advantage of the lowest rates available, time in transit considered;
- failure to combine less-than-carload shipments into carloads to get the benefit of carload rates;
- failure to combine less-than-carload shipments into carloads to "break bulk" point;
- failure to have shipments delivered to station nearest to warehouse or store to keep cartage charges to the minimum;
- failure to check freight and express bills;
- failure to make out and properly support claims against carriers; and
- failure to see that commodities shipped are properly packed to carry safely to destination;

as the most frequent causes of waste in transportation—all the result of inadequate attention to and lack of proper understanding of traffic matters.

Quite apart from questionnaire replies, many general suggestions might be offered in the interest of waste elimination—among them, that business establishments arrange to have their transportation situation investigated periodically just as they do their accounting situation. At a nominal cost they can have an unbiased, intelligent study made and a report rendered based upon a survey of their traffic, prepared by an outside traffic expert. Such report would make it possible to correct promptly any unsatisfactory situation that might be revealed. If everything is in order and being properly handled, this assurance would in itself be worth having. Since traffic management is new, many concerns might find that they stand in need of a complete reorganization of their shipping and transportation policies and methods.

The preliminary investigation here inaugurated points the way toward further research. It is highly desirable that additional traffic-management studies, as outlined by the Secretary of Commerce in his annual report for 1928, be undertaken at the earliest opportunity.

CHAPTER II

KINDS OF TRAFFIC ORGANIZATIONS

Traffic work is technical. The terminology of traffic is different from that encountered in handling other phases of business. Likewise there are many types of traffic organizations. All this adds to the general confusion that seems to exist in regard to the subject of traffic management.

A brief statement may be appropriate at this point with reference to the interpretation placed in this study on the expressions "traffic management," "traffic department," and "traffic manager."

Traffic management is a phase of business management considered necessary to the successful operation of practically all business enterprises, just as is accounting, financing, and selling. No concern is believed exempt from the need of traffic management solely on account of its size.

Traffic departments, on the other hand, present a different situation. While traffic management can exist without a traffic department, no traffic department can exist without traffic management. Whether or not an establishment should maintain a traffic department depends, among other things, upon its volume of business. To departmentalize a business would appear to require that there be sufficient work to engage the full time of at least one man in each of the subdivisions thus designated. A business can hardly be said to have a traffic department when it utilizes less than the full time of one man in looking after its traffic. But traffic management may require only part of the time of one executive.

Traffic manager is the usual title of the executive placed in charge of a traffic department. Some executives carry several titles and are in charge of several activities, dividing their time and attention among them. Therefore, when an executive is termed "purchasing agent and traffic manager" or "traffic and credit manager," it would indicate that his firm is managing its traffic but has less than enough business to require the exclusive attention of a traffic executive. So far as this study is concerned, however, such a firm is not considered as maintaining a traffic department.

Other traffic terms as used in this report will be found defined on pages 167–169.

It may prove helpful, too, to define at this point the specific scope of the work and the purpose of the various kinds of traffic departments set up to administer shipping affairs for business enterprises. The particular place in business and the services performed by each should be clearly differentiated.

CARRIER TRAFFIC DEPARTMENTS

A traffic department of a carrier is one maintained by a transportation company or by a business concern furnishing transportation or storage facilities and services for hire offered to the general public as a common or contract carrier. It looks after the transportation, traffic, and shipping services produced by its company in their relation to the general public. It deals primarily with the making of rates, rules, and regulations, the development and securing of business, and the rendering of various services to shippers in connection with the traffic that moves.

Among the various types of carriers may be enumerated steam railroads; electric railroads; barge, steamship, lighterage, and other waterway operators; cab, bus, taxi, truck, cartage, and other highway companies; airways; express; mail; warehouse, elevator, wharf, dock, and other storage concerns; telegraph, telephone, cable, radio, and other communication companies; private-car companies, and pipe lines. Some of these carriers also cooperate in the maintenance of a traffic bureau for some specific purpose, such as the publication of merchandise classifications and freight tariffs, the weighing and inspection of shipments, the preparation of statistics, and the reduction of claims.

INDUSTRIAL TRAFFIC DEPARTMENTS

A traffic department of an industry is one maintained by a shipper and/or receiver of freight, express, and mail matter. Its purpose is to manage its company's traffic, transportation, and shipping services, costs, and facilities through either direct or advisory control.

While the term "industrial" frequently is used to refer to the traffic departments of all types of business enterprises—and is so used in the title of this report—it also is employed to designate specifically the traffic organizations of converting or manufacturing enterprises, such as factories, refineries, and mills. In this restricted sense the term does not include business concerns in the extractive occupations, such as mines, quarries, ranches, and farms, nor firms of a commercial or marketing nature, such as jobbers, commission houses, wholesalers, chain stores, mail-order houses, and retailers generally.

COMMERCIAL TRAFFIC DEPARTMENTS

A traffic department of a commercial establishment is also one maintained by a shipper and/or receiver of freight, express, and mail matter. Its purpose is to manage the traffic, transportation, and shipping services, charges, and facilities either through direct control or in an advisory capacity.

While the term "commercial" sometimes is used to refer to the traffic departments of "public traffic bureaus" or of various types of business concerns selling their services to whoever may need them, it perhaps more properly designates the traffic organizations of wholesale, commission, and jobbing houses, retail stores, and dealers who do a mercantile or marketing business rather than those of a

3864°—30——2

more strictly industrial nature engaged in producing or manufacturing.

In this connection it may be well to state that concerns known as importers or exporters may be producers, manufacturers, wholesalers, jobbers, or retailers; but if they specialize in exporting and importing they are considered commercial in character.

COMMUNITY TRAFFIC DEPARTMENTS

A traffic department of a community is one maintained by the business interests of a city, region, State, or nation, financed through private subscription, membership dues, or taxation, and usually administered under the direction of a committee of members appointed by a board of directors, who in turn are elected by those supporting the organization. Chambers of commerce, associations of commerce, and commerce clubs illustrate the thousand or more organizations of this kind, about a quarter of which maintain traffic departments.

It is the purpose of such a department to look after the traffic, transportation, and shipping matters that affect the community or territory represented, in matters common to all, and not in matters of special concern to an individual member unless by such service the interests of a majority of the members are assisted. The theory is that in so doing a community is made a better place in which to live and to do business, traffic and transportation difficulties are straightened out, and economies, developments, and improvements are encouraged.

TRADE-ASSOCIATION TRAFFIC DEPARTMENTS

A traffic department of a trade association is one maintained by the individual business concerns in a specific division of an industry. Its field of operation may comprise a city, a county, a State, a region, or an entire nation.

For example, there are local, sectional, and national trade associations in the retail division of the textile industry; likewise in that industry's wholesale and manufacturing divisions. Some of these associations have set up traffic departments the purpose of which is to look after the traffic, transportation, and shipping matters of an administrative, service, facility, rate, and legal nature as they affect the members of their particular trade as a whole.

While some trade-association traffic departments perform specific services for individual members, and thus supplement the duties of industrial, commercial, and private service bureaus, this is not a natural field for their activities.

PUBLIC TRAFFIC BUREAUS—PROFESSIONAL SERVICES

A traffic department of a public nature is a service bureau maintained by a private individual or firm for the purpose of serving other business concerns (for an agreed-upon fee) in some special phase of traffic, transportation, and shipping or in a general traffic capacity. It is the object of such organizations to furnish certain

traffic services for shippers just as they would be handled by the industrial or commercial traffic department if one were operated by the shipper himself. In this way they tend to take the place of the traffic department for small shippers.

In some instances the service they offer is only a check on the firm's own work, as in the re-audit of transportation bills; in others, this is the only audit arranged by the firm for its transportation bills. The same is true of certain other services, such as loss and damage claim collection, which may be supplementary or used as a substitution. Claims, audit of bills, handling of rate and service cases before regulatory commissions, preparation of statistics and rate-case exhibits, and sometimes the actual handling of all the traffic functions of an office-management and clerical nature (such as rate quotation and billing) illustrate traffic matters handled by public bureaus for business institutions.

Like the organization of a public nature, a professional traffic man offers his services for hire to whoever may need them. Traffic and rate specialists, traffic analysts, commerce attorneys, traffic statisticans, rate-case accountants, and traffic counselors illustrate this group.

GOVERNMENT TRAFFIC DEPARTMENTS

Traffic departments, bureaus, committees, or divisions of transportation maintained by governments are of three different types. First there are those maintained out of general taxes, for the general benefit of the business interests of their territory; the area covered may be a city, a port district, a county, a State or several States, or the entire Nation.

Illustrative of such organizations are the Transportation Division of the United States Department of Commerce, serving the business institutions of the entire Nation; and the traffic bureaus of some State regulatory commissions, as in South Dakota. The purpose of this kind of traffic organization is not to handle traffic in connection with its own shipments; instead, its object is similar to that of the chamber of commerce, except that these organizations are official in character and usually cover a larger (or a different) territory than is taken care of by community traffic bureaus. That is, they handle matters of much more general interest beneficial to all, and seldom serve the interests of individual concerns except by dispensing information or explaining and clarifying traffic matters.

The second type is little different from a commercial or industrial traffic department. Such departments handle traffic for, and look after the shipments of, the bureau, commission, department, or other subdivision of the government of which they are a part. Illustrations may be found in the traffic and transportation bureaus maintained for the administration of their own traffic by the departments in Washington, D. C., coordinated by the Federal Traffic Board; and in the traffic bureau of the port of Portland, Oreg.

The third type of governmental traffic organization is one organized to assist a State or Federal regulatory body, such as the traffic divisions of the various State public-utility or railroad commissions, of the United States Shipping Board Merchant Fleet Corporation, and of the Interstate Commerce Commission.

COOPERATIVE TRAFFIC ORGANIZATIONS

In addition to the eight kinds of traffic departments that have been defined there are various additional organizations that interest themselves, entirely or in part, in the traffic and transportation matters of groups or members. A word concerning these "outside" cooperative associations, boards, bars, bureaus, conferences, clubs, chambers, exchanges, committees, leagues, or whatever they may be called, will tend to clear up the traffic-organization picture.

Carrier.—The various transportation companies associate themselves in organizations for various purposes. Such activities, from a traffic standpoint, pertain to their services, charges, and public relations and to traffic matters in general. The regional advisory boards, weighing and inspection bureaus, rate-making conferences and committees, and tariff publishing bureaus are familiar examples in this group. There are scores of such organizations bringing rail, water, highway, or aviation carriers together so they may cooperate in offering a more orderly, unified, coordinated system of transportation.

Shipper.—The purchasers of transportation services likewise band together for public and for self interest. Cooperative traffic organizations of shippers may be local in character, or may bring together shippers in more extensive areas such as a State, a group of States, or even the entire country. These organizations are different from trade-association and community organizations. They usually devote their attention exclusively to traffic matters—primarily having to do with the securing or maintaining of good service, advantageous freight rates, etc.

Community.—The local chambers of commerce sometimes group themselves into State, sectional, or national associations, each of which may maintain a traffic bureau or transportation department to look after the affairs of its members. Their interests are broad in scope and frequently have to do with legislative matters.

Public.—The traffic service bureaus have set up a national organization to look after matters of common interest. This organization, although new, holds promise of particular value due to the part it can play in establishing standards and ethics and acquainting business concerning the value and place of such organizations in business.

Professional.—Those offering professional services in the handling of legal matters of a traffic nature before governmental regulatory bodies have only recently set up a cooperative organization to protect their own and the public's best interests. The scope of the activities of this group is not yet fixed, but the need for such a bar is without question.

Government.—The port authorities of the country have both a sectional and a national organization, embracing in their educational activities all of the work incident to the operation of the port, including traffic. Likewise, the various State regulatory boards and commissions have their national organization.

General organizations.—There are other traffic organizations set up for cooperative purposes which embrace in their membership practically all interests. The shippers' advisory boards do this with reference to railway operating matters, and the community organizations unite all interests in transportation legislative affairs; the traffic clubs also amalgamate all interests for social, public-relation, and educational purposes. There are close to 150 such local organizations in the United States, including a national organization of traffic clubs.

CLASSIFICATION OF INDUSTRIAL TRAFFIC DEPARTMENTS

The phrase "industrial concern" is used in a broad sense in this report. It designates all business establishments—producers, manufacturers, and marketers. Such concerns actually ship and receive goods. They are the users of carrier services. The term excludes carriers, chambers of commerce, trade associations, traffic bureaus, banks, insurance houses, and of course persons offering professional services such as doctors, lawyers, and accountants.

The phrase "traffic department" is here used to designate the subdivision of a business to which is delegated advisory or direct control over the administration of traffic and transportation functions. A traffic department does not necessarily indicate an elaborate organization; it may be made up of a single employee as well as of a group of employees.

Practically every business must receive and ship goods in order to operate. In the conduct of its affairs it packs, marks, bills, delivers, receives, and stores merchandise, orders and loads cars or trucks, and settles for transportation services performed by outside concerns. If a firm does in a shipping way only what it must in order to operate, it can fairly be said not to be "managing" its traffic. Illustrative of such businesses are farms, coal mines, and grocery stores. Any business that does more than it is forced to do along traffic lines is to that extent "managing" its traffic, and may be considered as having the nucleus of a traffic department even though it may not recognize its existence.

In order to understand better the discussion that follows concerning traffic organizations and their functions, the traffic departments of the shippers and receivers of goods have been classified as to the kind of business or the industry in which they are engaged; the functions handled by their employees; their type of organization; and the functional control which they exercise.

KIND OF BUSINESS OR INDUSTRY

Classification of industrial traffic departments as to the kind of business the firm of which they are a part is engaged in, namely, producers, manufacturers, wholesalers, or retailers, calls for no special discussion; nor does classification of departments as to the kind of industry, namely, rubber, leather, or textile.

The organization, functions, size of staff required, amount of administrative expense necessary, and similar basic matters are, however, dependent to a large extent upon the kind of business and the nature of the industry.

KIND OF FUNCTIONS HANDLED

Industrial traffic departments may be classified as to the nature of their work. Sometimes a department is referred to as being

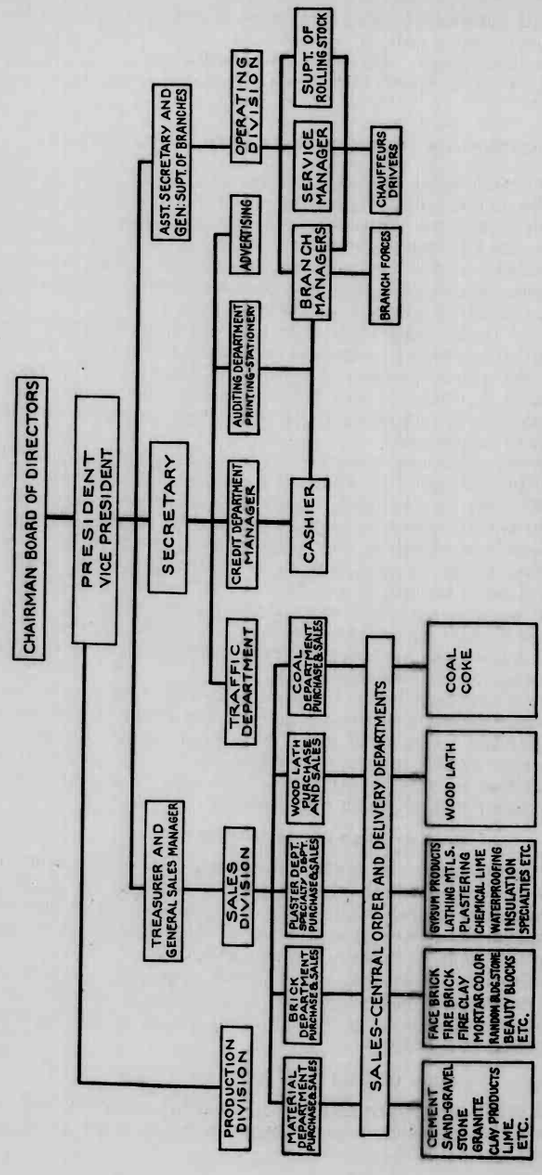

FIGURE 1.—NONPHYSICAL TRAFFIC ORGANIZATION

The traffic department of this coal and building-materials distributor having 15 plants and 15 warehouses does not exercise direct control over the physical handling or transportation functions, but does report to an executive officer. It cost $16,000, saved $14,000, and spent $2,850,000 for transportation, which amounted to 31 per cent of total annual expenditures. A general yard superintendent looks after storage and physical handling, a superintendent of plant supervises rail transportation facilities, and a superintendent of equipment administers highway facilities.

"clerical," which usually means handling service and cost matters, preparing and filing claims, quoting rates, and auditing freight bills. Such departments are, at present, perhaps of the greatest number. The following statement is illustrative:

> Ours is a nonphysical traffic department. By "nonphysical" we mean that it does not have immediate responsibility for the physical handling of goods, receiving, shipping, or delivery. We feel it would be less useful if it was forced to watch all these details as part of the daily work. For while these departments, or any other in our organization, are not directly responsible to us, we have full freedom to go among them anywhere we like, looking for a chance for improvement, and make suggestions toward that end, and I may say that our suggestions are usually followed.

Then there is the "physical and clerical" traffic department, not only handling claim, rate, audit, and like office matters but also being in charge of packing, shipping, and receiving rooms. Traffic functions of an administrative nature may be assigned to it; this will call for outside contact work, as in the company reporting:

> It is the duty of the rail-traffic department to handle every question of any nature whatever, both freight and passenger, between this company and all railroad companies, coastwise steamship companies, and lake lines, including negotiations with all commissions, committees, and bureaus affecting transportation, such as the Interstate Commerce Commission, State utility commissions, classification committees, rate committees, bureau of explosives, and regional boards.
>
> This covers, as well, the routing of traffic, the approval of freight bills, the handling of privately owned tank cars, construction of sidetracks and unloading pipes and the approval of sidetrack and pipe-line agreements, the leasing of property for storage purposes or service stations, proper packing, loss and damage claims and claims for accident or injury, and every other matter between the carriers and ourselves.

Certain companies are large enough and of such a nature that they own a great deal of their own transportation equipment. This may be turned over to the traffic department for handling, as in the case reported below:

> Additionally, a considerable section of my office is operated as a transportation division through which the tank cars owned and leased by the company are distributed to the various shipping points and car records and repairs maintained.

A classification of the various services and functions of industrial traffic departments is given in Chapter IV.

KIND OF ORGANIZATION

Traffic departments may be grouped in accordance with the size and extent of the organization which they maintain and the amount and degree of control exercised over traffic functions in general.

In some concerns a part-time traffic manager suffices. He gives his attention jointly to the administration of traffic and perhaps purchasing. While his traffic activities are sometimes referred to as those of the "traffic department," for the purposes of this survey a concern not having at least one full-time traffic executive is not considered as having a "traffic department." The part-time traffic manager of a jobber of plumbing supplies, in the central Northwest, states that he shows "money savings alone amounting to $55,000 or $60,000 a year." Even so, in his city, which has a population of 250,000, he says he knows of no concern that permits its traffic

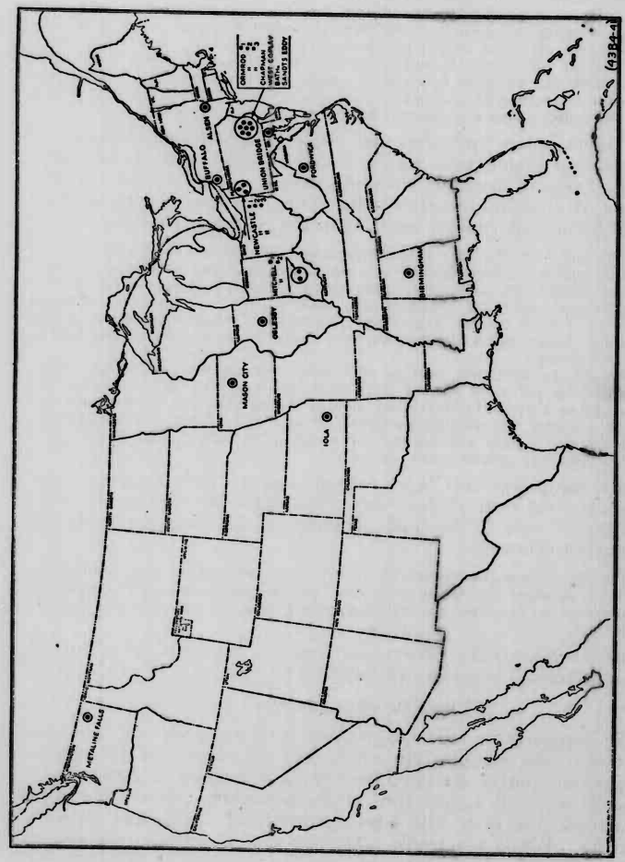

FIGURE 2.—A LARGE REGIONAL TRAFFIC DEPARTMENT

A company operating 21 mills, the locations of which are indicated by the black dots on the map, is required to set up an industrial traffic department consisting of 92 employees and costing $179,000. The executives in charge of traffic consist of a vice president, an assistant to him, a general traffic manager, a traffic manager, and an assistant traffic manager, all located at the general offices of this concern; also strategically located throughout the country are assistant traffic managers in Birmingham and Kansas City; district traffic managers in Kansas City, Spokane, and Mason City; and a manager of floating equipment in New York City.

manager to concentrate exclusively upon handling traffic matters, but, instead, allots also credit, purchasing, or miscellaneous functions to him for handling.

One-man traffic departments are common. In this type a single employee, assisted perhaps by a stenographer, takes care of the administration of all traffic matters. He gives his full time and attention to the work, however. He represents the "department."

A reason frequently given for not having a traffic department or for having a part-time or 1-man arrangement is dependence upon

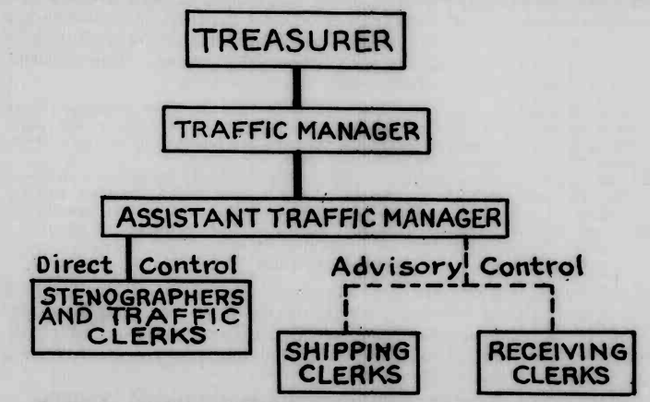

FIGURE 3.—TRAFFIC FUNCTIONS DECENTRALIZED IN LARGE ENGINE MANUFACTURING CONCERN

This company, employing over 2,000 men in three plants, has a small traffic department reporting to an executive officer and exercising direct control over traffic service and cost matters, but only advisory control over shipping and receiving rooms. In this firm the legal department handles regulatory and commission work and the production department the physical-handling and transportation facilities. The $7,372 spent for traffic administration—representing less than 3 per cent of total transportation expense—simply provides for the supervision of rates, claims, outside transportation service, and certain traffic administrative functions.

the services rendered by one of the following types of "outside" traffic concerns:

(*a*) Traffic-service bureau (cooperative basis).
(*b*) Trade-association traffic bureau (membership basis).
(*c*) Community (chamber-of-commerce) traffic or transportation department (membership basis).
(*d*) Professional specialist (used only occasionally and on a special-fee basis).
(*e*) Carrier traffic department.

Use of the services furnished by outside traffic bureaus and specialists is discussed on page 124 in connection with the problems of the small business. Although concerns of all sizes hold memberships in trade associations and community bodies, and make use of their traffic bureaus as well as of the services of the public bureau and professional traffic man, it is much more common to find the small concern depending largely or entirely upon outside bureaus for its traffic administration.

Then there is the joint traffic department. A traffic department may have "complete control" over all traffic functions; or it may have complete control over some traffic duties and cooperate in a functional way with other departments that exercise partial or complete control over other traffic functions.

A general traffic department is one having a general traffic manager directing the traffic matters of several regions, divisions of the country, or distant plants and branches, each of which in turn has a traffic manager in immediate charge. Sometimes a general traffic manager has complete control over the traffic of each branch and sometimes only partial control; a good deal depends upon the nature and size of the company and the degree or form of ownership held by the parent company over its various subsidiaries. This is illustrated by the following statement:

> In our Mississippi plants, of which we have two, we have shipping clerks, but most of the traffic work is handled from headquarters, while at our plant located at St. Louis most of the traffic matters are handled by its own traffic manager, but with supervision from this office.
>
> In our other factory here (at headquarters), which is an entirely different concern, all traffic matters are handled by this department—tracing, routing, etc.—while for our plant in Washington State we here (at headquarters) act only in an advisory capacity, that mill having a traffic manager of its own.

KIND OF CONTROL

Traffic departments are also classified according to the kind of control which they exercise over the traffic functions, that is, direct advisory, or none—as in the case of functions assigned to other, wholly independent departments. These matters are treated in a later chapter. (See p. 49.)

A word of explanation should perhaps be given with reference to independent control. When a concern has no traffic department, the shipping, traffic, and transportation functions are handled by various departments, each of which operates independently of the others, and usually without complete coordination between them in the administration of such matters. If, later, a traffic department is organized, certain of the functions previously handled by these independent departments may be retained by them.

CHART ILLUSTRATING THE VARIOUS WAYS OF CLASSIFYING INDUSTRIAL TRAFFIC DEPARTMENTS

I. Kind of business.	1. *Producer* (extractive). Examples: Wheat, cattle, coal, fruit, and vegetables. 2. *Manufacturer* (converter). Examples: Flour, meat products, coke, canned goods. 3. *Wholesaler* (distributive). Examples: Commission house, jobber. 4. *Retailer* (distributive). Examples: Independent, chain, mail-order, and department stores.
II. Kind of industry.	1. *Agricultural.* Examples: Grazier, stockyard, packer. 2. *Automotive.* Examples: Automobiles, tires, gears, axles. 3. *Building and contracting.* Examples: Engineering, constructing.
III. Kind of functions handled.	1. *Service and cost* (clerical or nonphysical). 2. *Administrative, service, and cost* (executive and clerical). 3. *Administrative, service, cost, and physical handling.* 4. *Administrative, service, cost, physical handling, and transportation.*
IV. Kind of organization	1. *No organization;* outside public or private traffic bureau used. 2a. *Part-time man* (one employee devoting only part of his time to traffic matters). 2b. *Joint traffic department* (or part-time traffic department, which handles traffic functions along with work of another character; an elaboration of No. 2a). 3. *One-man traffic department* (one employee devoting his full time to traffic matters). 4. *Dual traffic department* (having complete control over some traffic functions, the others being handled by another department over which the traffic department has only advisory or consultative control, or none). 5. *Traffic department* (exercising direct and complete control over all traffic functions). 6. *General traffic department* (an enlargement of No. 5; directing not only all local traffic matters, but also those of branch offices, factories, or warehouses in other localities).
V. Kind of control exercised over functions.	1. *Advisory* (traffic department exercises only advisory control over the various traffic and transportation operations; this is known also as the "built-in" department or "staff" arrangement). 2. *Direct* (traffic department exercises absolute control over all phases of traffic and transportation operations). 3. *Advisory and direct* (traffic department exercises absolute control over certain traffic functions and advisory control over others handled by other departments). 4. *Advisory, direct, and independent* (differing from No. 3 in that certain departments may have complete control of certain traffic or transportation functions, over which the traffic department does not exercise even advisory authority).

CHAPTER III

PLACE OF TRAFFIC ADMINISTRATION IN BUSINESS

Many problems are faced by any industry proposing to set up an organization to look after its traffic. The material assembled by this survey throws some light on such matters.

Good traffic organizations usually are the result of time. An indication of this is given by a wire and fence manufacturer located in Ohio, who has "had a traffic department, reporting directly to the president of the organization, for the past 16 years, starting with one man and gradually increasing until it has reached a total of seven to-day." But the better departments are not necessarily the older ones, because careful planning and a study of the experiences of other industries enables a new organization to "cut corners" and avoid mistakes.

TRAFFIC ORGANIZATION PROBLEMS DIFFERENT FOR EACH SHIPPER

No standard traffic organization plan can be offered to fill the requirements of all industries. Each shipper has similar, but not necessarily identical, requirements to meet. This is brought out by statements from two world-known companies. Said an executive of a chain-store organization:

> The writer was employed in 1914 to organize a traffic department, first visiting a number of industrial traffic offices in and around New York, having in mind getting suggestions that might be useful in developing our traffic department. However, we found that their principles, rules, and practices could not be used by us. We therefore were forced to develop an organization and system that would best serve our needs.

And an oil company reports similarly:

> Our traffic department is organized and systematized to meet the peculiar needs of our company. It probably could not function with the same degree of efficiency for any other company without considerable change of system.

TRAFFIC WORK MUST BE UNDERSTOOD AND SUPPORTED

In order to do its best, the traffic department must be understood and given support. Proper backing calls for a budget sufficient to operate on without neglecting any important phases of the work that a traffic department can and should do.

Many organizations handle simply the clerical traffic work, as the following typical example discloses:

> So far as our four companies are concerned, the work of quoting rates, checking freight bills, and filing claims has been such as to leave no time at all for other matters which should, and ordinarily do, come under the jurisdiction of a traffic department.

Contrasted with this is the broad jurisdiction given the traffic organization of a soap factory in New England:

> This company's traffic department attempts to be responsible for all the company's purchases from the time of their shipment by supplier (sometimes from the date of their purchase) to and including actual delivery at the plant, including all the records, invoices, freight bills, etc., pertaining thereto. It likewise attempts responsibility for the company's finished product from the time it leaves the packing machines until it is put into the hands of the purchaser, and sometimes through the purchaser into the hands of his customer.

Administration of the numerous activities that fall to the lot of a general traffic manager, with branch plants, warehouses, or stores located in many scattered localities, is not greatly different from the problems of a railroad operating department or a national sales organization.

The importance of traffic work and the responsibility resting upon those practicing in the traffic law field were well expressed by Commissioner Aitchison in his recent speech before the National Association of Railway Commissioners, when he said:

> I believe it is to become a new profession, embracing the administrative officers and practitioners before the administrative tribunals. This profession is akin to that of the lawyer, but, as we shall see, it is less and it is more. The contention I make is for the recognition of this pursuit as a calling distinct from but related to other of the learned professions, and for the development of educational and ethical standards which will make the profession of greatest usefulness as a part of our governmental machinery. * * *
>
> The amazing growth of these administrative agencies is a direct result of increased business, increased wealth, increased wants, all interlacing and interacting. And the importance of matters handled administratively has increased both in amount and in consequence. Several times the Interstate Commerce Commission has dealt with annual revenues of $6,000,000,000 in one proceeding, the result of which had a direct and immediate effect on every person who traveled or who produced or consumed goods. * * *
>
> Dignity, too, has come to such service. The courts give the administrative determinations a degree of finality which they do not always accord to inferior judicial tribunals. * * * A simple test will show the importance and volume of matters handled by such administrative agencies. Take down a recent volume of the reports of the United States Supreme Court, analyze the important cases disposed of upon opinions; see how close to 50 per cent of all the matters passed upon by the highest court are concerned with the jurisdiction or action of administrative officers or agencies. They are usually civil matters, but they far outnumber the cases involving civil rights which have been heard only in the courts. A generation ago this test would not even have suggested itself. Without discussing whether this tendency is desirable or inevitable, the disproportion is growing. * * *
>
> All of this is virtually a new form of lawmaking, and it requires counsel and advocates as well as those who sit in these semijudicial places. With the latter class are to be included the great number of trained assistants and subordinates to whom are delegated the important duties of being the eyes and ears of an administrative officer who can not personally see and hear everything. For such administrative assistants there is a great opportunity for public usefulness. They will progressively receive more direct localization of authority, with its responsibility and prestige and, we may hope, adequate compensation. Public service offers no more attractive career.

TRAFFIC-DEPARTMENT PERSONNEL PROBLEMS

The most important problem faced by an industry in connection with its traffic management has to do with the selection of the staff to be placed in charge. Great care is required in choosing a traffic manager. Few standards for measuring the relative efficiency of

applicants are available to-day. Coupled with this is the fact that the executives who must do the selecting may have a limited idea of the nature of the work that is to be handled. Many industrial traffic managers are capable in every way; others, however, fail to measure up to the full requirements of this technical field of work.

The traffic manager of a large engine works in New England points out the difference between the employees equipped with practical experience and those having only book knowledge:

> The success of any traffic department depends upon practical experience as well as technical knowledge; that is, a man with wide practical experience is worth more to an industry than a man with simply a knowledge gained through study. I have had both kinds of men working for me. The man with practical experience speaks the traffic language and has contacts with carriers gained through acquaintance and contacts on the job. That is a big asset.

Of course, he does not mean to belittle the value of a wide reading and study of traffic management, for it is generally understood that the ideal employee is one combining in his training both theory and practice. A Pennsylvania steel official emphasizes the thought held by many others when he says:

> No industry doing business to any great extent should be without a traffic manager; and when I say "traffic manager," I mean one with practical experience.

Not only is the traffic executive expected to be experienced and well informed concerning the technical practices of his work, but he is expected to have the ability to coordinate the relations of his department with those of the other departments. As one traffic manager points out:

> Most of the waste resulted from a lack of cooperation between the traffic department and other departments. My predecessor was not a diplomat, therefore some of the branch managers and department heads did not use his services to the fullest extent. Some of the branches did not send in their freight bills to be audited. It took several years to straighten this out, but all freight bills are now audited by this department. Freight bills that have not been checked by a competent rate man are certainly a form of industrial waste.

The traffic executive is required to carry on a continuous campaign of education, not only among his own staff, but also among the other members of the concern, among shippers from whom goods are received, and among outside carriers and service companies. This usually brings results, as stated by the executive of a Los Angeles wholesale house:

> Have studied and practiced waste elimination in transportation for over five years. As a result, have reduced all claims and waste 95 per cent. Have educated all of our shippers to our traffic wants. Also our employees.

STANDARDS FOR MEASURING EFFICIENCY

As just pointed out, one of the most important traffic organization problems is the selection of the proper man to administer traffic activities. There are many difficulties surrounding such a task to-day, and an executive unacquainted with traffic work could hardly be expected to make the proper selection. With that in mind, this survey brings forth the following suggestions:

Many reasons can be advanced in favor of establishing standards for measuring the efficiency of industrial traffic managers, for a traffic department serves in four distinct capacities:

(*a*) It performs a productive operating activity, like the factory;

(*b*) It prevents losses, eliminates wastes, and recovers sums that would otherwise be lost, just as does the accounting department;

(*c*) It acts in a staff capacity advisory to the executives, similar to the company's legal department; and

(*d*) It provides better service, facilitating the work of all departments.

Lack of understanding of the broad field in which he functions places a limitation upon the usefulness of the traffic manager. In writing of the handicaps to effectiveness faced by industrial traffic managers, Prof. Lewis C. Sorrell, of the University of Chicago, recently said:

> It must finally be stated that the lack of standard qualifications for industrial traffic management, the absence of knowledge on the part of superior executives regarding the work of this division, and the consequent irresponsible nature of the position ("irresponsible" in the sense that no one can effectively question the decisions of the traffic executive) can not be regarded as conducive to the best results. It is not meant that these limitations on effectiveness are always encountered—simply that the various limitations found seem to fall into these classes.

In an address before the York Traffic Club not long ago, D. T. Waring, assistant traffic manager of the Central Leather Co., said:

> The savings or profits resulting directly from the work of an industrial traffic manager are often intangible and therefore difficult of a fair and accurate appraisal by his superior executives. Too often the industrial executive has so little knowledge of the traffic manager's work and field for real accomplishments that he is unable to distinguish between a capable and valuable man—one who is studious, aggressive, and endowed with initiative, experience, and a good share of common sense—on the one hand and the ordinary mechanical man on the other. Illustrating this, suppose an executive questions a certain freight rate on which he is moving, or intends to move, a volume of freight. He is in no position to say whether or not the rate is as low as it should be or otherwise properly adjusted, but must depend on the advice of his traffic manager. It may or may not be possible to secure any reduction in the rate; but whether it is or is not, the executive must accept the traffic manager's statement.

The traffic executive may be capable or incapable; honest or dishonest; energetic or lazy. Executives who do not understand traffic work have an insufficient check on his activities. In witness of this, note the Annual Report of the Secretary of Commerce for the Fiscal Year Ended June 30, 1928, in which it is stated, in connection with industrial management:

> It is further evident that at the present time it is difficult for an executive to determine the fitness of an applicant for such work or to check the capability of the employee after engagement. It is therefore hoped that some system may be worked out whereby traffic clubs or similar organizations may hold public examinations in traffic management and issue certificates of fitness for various grades—as, for instance, director of traffic, senior traffic manager, junior traffic manager, traffic clerk, etc.

OTHER ADVANTAGES THAT WOULD ACCRUE

A second need for establishing standards for measuring the efficiency of traffic managers comes from the fact that skill can not be

exercised, wastes eliminated, and business properly managed unless there are men well prepared to manage such work. The Secretary of Commerce goes on to say:

> The development of a trained traffic personnel will be of first importance in achieving results * * * in the field of physical distribution.

In the third place, a standard would set forth the detailed subject matter that training for such work must cover and the sources of the information. This would enable schools to offer training in these subjects. At the present time, without a guide of this kind, even though suitable training materials are available, traffic courses are not generally offered in colleges and other educational institutions.

Still another reason for setting up such standards comes from the guide it would provide to those desirous of preparing for traffic positions. Knowing the specific requirements, not only students but also those already engaged in traffic work would be able to equip themselves more completely and with less effort and delay.

The fifth reason in favor of standards measuring traffic efficiency is to raise the quality of traffic work and of the executives engaged in administering it. This would tend to elevate the standard of work of traffic men generally. It would unquestionably dignify the work and broaden the appreciation and understanding of it, not only as held by those engaged in traffic activities, but also as held by their employers, their coworkers at the head of other departments, and by the general public.

TYPES OF BUSINESSES REQUIRING TRAFFIC ADMINISTRATION

In the investigation undertaken to find the place held by traffic work, and the place of those engaged in directing it, the kinds of businesses requiring management of their traffic were first looked into.

To answer this question it is necessary to classify business concerns with reference to their traffic-management needs. There are three distinct types:

(*a*) Concerns that clearly have no traffic to handle, or so little that its handling is of scant moment;

(*b*) Concerns that are on the border line and have traffic that requires attention, but of a doubtful volume to justify a heavy overhead expenditure; and

(*c*) Concerns that clearly have a sufficient amount of traffic calling for administration.

CONCERNS HAVING LITTLE OR NO TRAFFIC

Everyone recognizes that all businesses do not require traffic administration. There are some that spend such a small percentage of their time and funds in connection with shipping that they clearly can operate successfully without giving traffic matters any special administrative attention. Among these may be mentioned the small jewelry stores, delicatessens, confectionery stores, and other similar retail establishments.

Credit associations, surety underwriters, banks, security brokers, public accountants, insurance agencies, dentists, doctors, lawyers, photographers, artists, and musicians also come in this class. Their business interests are not likely to suffer from lack of intelligent traffic management.

Manufacturers of goods the raw material for which is secured locally and of products which are marketed locally also may have little traffic requiring management, although each such case calls for special study. Goods of low value, such as saw logs or gravel, need little traffic attention, although the transportation costs may be large compared with their value. Also, business concerns handling goods having a large labor cost but a very small percentage of transportation cost in their production may safely continue in business without requiring an extensive knowledge of traffic administration, even on the part of the owners.

CONCERNS HAVING SOME TRAFFIC

It is the second group of business establishments—those on the border line—that require the most careful study. Some few may be maintaining traffic staffs without need for them; there is an occasional record of a firm establishing a traffic department only to abandon it later on finding it an unwarranted expense. On the other hand it is common to find concerns in need of increased traffic administration. In this connection it will be well to examine the factors (discussed below) that aid in determining whether there is a real need for traffic management and to test them by application to specific cases.

CONCERNS HAVING CONSIDERABLE TRAFFIC

An overwhelming majority of business firms that have a considerable amount of goods to be moved have set up departments and engaged capable executives to administer their transportation affairs. Perhaps the volume of traffic of such firms necessitated its administration; at least, the volume alone presented many problems and prevented traffic matters being overlooked. Or perhaps the establishment of traffic departments had a significant part in creating the traffic; that is, proper traffic administration may be credited, in part, with the success of the firm.

It is rare to find a really large business without a capable, full-time traffic manager. Some may be said to attain size and prosperity in spite of a lack of good traffic administration; but the very fact that the more successful companies do administer their traffic affairs would suggest that, in proportion to their size, smaller businesses should do likewise. Functions of a traffic nature should be administered. The amount of administration is not important; what is important is that it be adequate.

Firms purchasing materials f. o. b. their places of business and selling f. o. b. their places of business frequently hold the view that their suppliers on the one hand and their customers on the other look after all matters of a shipping nature, and consequently that this frees them from the necessity for having anyone on their pay roll to look after traffic matters. This is a common misconception and a dangerous one. It has resulted in the loss of money on purchases and the loss of sales for such concerns.

3864°—30——3

FACTORS DETERMINING THE NEED FOR TRAFFIC ADMINISTRATION

To what extent traffic management is required is dependent upon the following factors:

1. The nature of the industry (agriculture, mining, clothing, furniture);
2. The nature of the business (producing, manufacturing, wholesaling, jobbing, retailing);
3. The volume of tonnage moved (number of tons or carloads per year);
4. The number of shipments made (number of bills of lading prepared or other transportation contracts issued per year);
5. The value of the goods shipped (for example, iron ore $4 per ton, raw silk $8,000 per ton);
6. The distance goods are transported (within a plant, a city, a State, a country, or the world);
7. The amount of money possible to be saved; and
8. The value of traffic services performed in the operation and control of a business.

Every major industry has need for traffic administration. Every phase of each industry—production, manufacture, distribution—also has need for exerting the utmost care to avoid excessive wastes and transportation costs. A measure or guide to the extent that a particular business may have need for traffic management is considered to be:

1. The percentage relationship of total transportation costs to total expenditures; such figures range from 1 per cent to almost 100 per cent and average 25 per cent. (See pp. 92–95.)
2. The value and importance of transportation service to the successful operation of the business.

For example, a wholesale coal company may have a total transportation bill amounting to 80 per cent of its total expenditures; to such a concern, skillful management and understanding of traffic are paramount to almost any other knowledge that the executives may be called upon to display in successfully carrying on the business.

On the other hand, a manufacturer of clothing may have a transportation bill amounting to only 2 per cent of total expenditures; yet the quality of its transportation service is of great importance to such a business, because inbound materials must reach the plant without delay and in good condition or a shutdown may result, and unless its outbound transportation is expeditious, accurate, and economical customers will become dissatisfied and the volume of sales will be reduced. In highly competitive businesses service to customers is vital.

NUMBER OF FIRMS MAINTAINING TRAFFIC DEPARTMENTS

Responding to the question, "Do you maintain a traffic department?" nearly half of those filling out questionnaires replied in the affirmative, but only 13 per cent of those answering by letter. Taking business houses of all kinds and sizes, in all parts of the country, perhaps not over 5 per cent maintain traffic "departments"—that is, have at least one man devoting his full time to traffic-management functions other than activities absolutely necessary in order to

operate; but, of course, a much larger percentage "manage" their traffic in some degree.

Analysis of the questionnaire replies revealed the following percentages for concerns of various sizes:

TABLE 1.—PROPORTION OF FIRMS[1] MAINTAINING TRAFFIC DEPARTMENTS

Reply	Size of firm[2]			Total replies
	Small	Medium	Large	
	Per cent	*Per cent*	*Per cent*	*Per cent*
Yes	19	53	90	49
No	81	47	10	51

[1] Firms returning questionnaires in this survey.
[2] The terms "small," "medium," and "large," as used in this report, are explained on page 120.

The questionnaires show the following additional information on this subject:

Only one small firm out of every five replying maintains a traffic department. Of the 81 per cent that do not, 16 per cent, or about one out of six, calls upon an outside traffic bureau (trade association, chamber of commerce, or public-service bureau) for traffic assistance. In other words, only one-third of the small concerns have the advantage of traffic management as provided either within their own organization or on the outside.

A little over one-half of the medium-sized firms maintain their own traffic departments; of those that do not, one-fourth secure assistance from outside traffic bureaus. Hence, about two-thirds of the medium-sized firms either maintain their own traffic departments or seek traffic-management assistance on the outside.

Nine out of every ten large concerns maintain traffic departments; half of the others look to outside bureaus for advice and help. About 95 per cent of the large firms have traffic departments of their own or subscribe to outside bureaus.

TRAFFIC DEPARTMENTS IN THE VARIOUS INDUSTRIES

Based on the questionnaires received, traffic departments are found maintained in the different industries in varying proportions.

With 12 branches of manufacturing reporting, 55 per cent of the industries engaged therein indicated the maintenance of traffic departments. (In this connection it might be added that 74 per cent of all the questionnaires returned came from manufacturers.) The percentages of firms maintaining traffic departments in these 12 major industries were:

	Per cent
Oil refineries	90
Automotive and rubber	86
Chemicals and drugs	70
Flour milling	65
Paper and stationery	52
Cement and building materials	50
Clothing and dry goods	50
Machinery	45
Iron, steel, and hardware	44
Foodstuffs and groceries	42
Textiles	30
Lumber and furniture	30

With only half of the industries distributing goods reporting in sufficient volume to make calculations possible, 42 per cent indicated

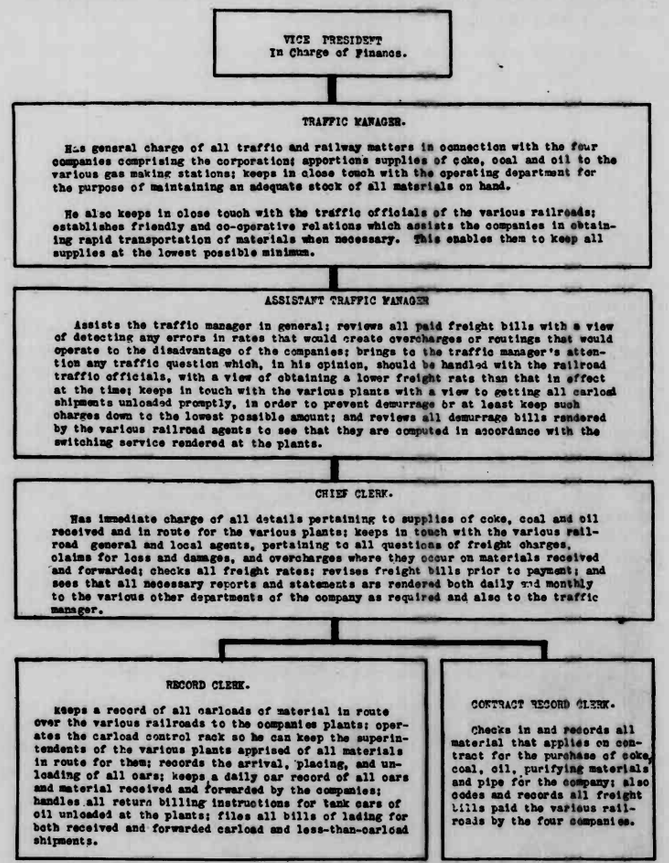

FIGURE 4.—PUBLIC-UTILITY TRAFFIC DEPARTMENT FOUND PROFITABLE

This chart illustrates the traffic organization set up for a large public-utility company located in the Middle West. Since very few gas, water, electric-light, or power companies maintain industrial traffic departments, the duties of the five employees comprising this organization are given in detail. The cost of traffic administration for this concern was reported as $15,250.

the maintenance of traffic departments. Thirteen per cent of the questionnaires returned came from wholesalers and 5 per cent from retailers. The following results were noted:

	Per cent
Clothing and dry goods	62
Wholesale groceries	48
Iron, steel, and hardware	40
Furniture and lumber	32
Agricultural products	31

Two branches of production sent in questionnaires, amounting to but 8 per cent of all replies. Traffic departments were found among the producers to the following extent:

	Per cent
Oil	75
Building materials	47

Investigation among certain branches of manufacturing, production, and distribution indicates that the individual firms that did not reply and the industries that did not reply are the ones that do not maintain traffic departments. For example, the trade associations representing the producers and distributors of coal, as well as numerous letters from individuals, advised that very few firms handling this commodity have traffic departments; likewise, the producers of livestock, dairy products, farm products, tobacco, cotton, fish, logs, and sand, gravel, crushed rock, and stone.

The distributors of agricultural products (other than those handled by flour mills, tobacco factories, and sugar refineries), such as fruit, vegetables, and hay, and of foodstuffs (other than meat and dairy products handled by the large packers), such as the retailers of milk, butter, meat, and groceries, are operating without modern traffic administration; likewise the automobile tire and accessory dealers, contractors and builders, druggists, fuel, lumber, and building-material dealers, and furniture and stationery stores.

Public-utility companies furnishing light, heat, and power (electric and gas), and municipal, county, and State governments also represent classes of business institutions in the main lacking traffic management.

In an eastern State some 2,500 business concerns are members of an organization of associated industries. Out of this membership "only about 400 have traffic departments." However, the organization itself has a "traffic managers' council," in connection with which 227 firms and 10 chambers of commerce were listed.

A further analysis of this rather typical group reveals there were 27 different titles shown in connection with the members of its traffic managers' council. One-third of these were officials other than traffic; indicating that not over 140 concerns, or less than 6 per cent of the total belonging to the association, maintain traffic managers. The list of titles follows:

	Per cent
General traffic manager (5 firms), traffic manager (133), transportation manager (1), special traffic manager (1)	62
President (10 firms), vice president (7)	8
Secretary (24 firms), assistant secretary (2), secretary and treasurer (1)	12
Treasurer (16 firms), assistant treasurer (1)	8
Purchasing agent (4 firms), assistant purchasing agent (2)	2
Office manager (4 firms), chief clerk (1)	2
General manager (2 firms), assistant general manager (1), manager (2), assistant manager (1)	2

	Per cent
Superintendent (1 firm), materials superintendent (1), woodlands department manager (1)	1
Counsel (1 firm), auditor (1), comptroller (1), credit manager (1)	2
Sales manager (2 firms)	1
Total (227 firms)	100

TRAFFIC MANAGER'S PLACE IN COMPANY ORGANIZATION

One indication of the importance placed upon traffic-administration work by business firms has to do with the relation of the traffic manager to the executive board that determines company policies. The survey aimed to ascertain in how many instances traffic managers are members of their firm's executive committee or board. This has to do with the place of the traffic department and the traffic manager in the organization plan.

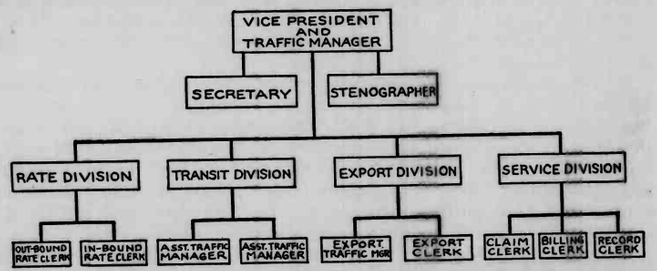

FIGURE 5.—A GOOD NONPHYSICAL TRAFFIC DEPARTMENT

Showing a well organized and managed traffic department of a manufacturer of corn products, but in charge of only the traffic service and cost functions. This firm expends about $5,000,000 annually for transportation, which sum amounts to 25 per cent of its total expenditures. While the cost of traffic administration was about $30,000, traffic receipts amounted to over $162,000, conservatively estimated. This is considered one of the best industrial traffic departments handling administrative, technical and clerical functions, in the country.

The returns indicate that the traffic manager is placed on a level with other executives, with a voice in the management of the affairs of the business, in approximately 15 per cent of the cases. This without doubt represents the highest form of recognition that could come to the traffic manager and the department over whose manifold activities he exercises executive control.

Even in those instances where it is reported that the traffic manager is not a member of the firm's executive board he sometimes is made a member of an advisory council, service committee, board of operators, or superintendents' conference. This clearly indicates the effort that is being made to appraise properly the value of the traffic executive and shows, moreover, what might be considered the trend in all industries.

As illustrative of the composition and nature of the activities of executive boards, quotations are made from a few of the reports. One says:

The traffic manager is president of the company's welfare club, composed of executive officers, department heads, and foremen, thereby exercising a very close working connection with the executive board.

In another communication it is stated:

The traffic manager is a member of our business development committee of three reporting to the executive board.

Still another has this to say:

The traffic manager is a member of the advisory committee that meets weekly with the president and other executive and administrative officers for discussion and decision of policies of general operating and business concern to all departments.

JURISDICTION OVER TRAFFIC ACTIVITIES

DEPARTMENT RESPONSIBLE

As would be expected, in organizations that maintain traffic departments most of the traffic work is placed under the jurisdiction of that department. The exact extent of this is discussed in detail in connection with the facts reported covering traffic functions. (See p. 33.)

Traffic departments.—Briefly stated, where traffic departments exist, 75 per cent of all the traffic functions are delegated to the traffic department for handling. The other 25 per cent is either scattered among additional departments also specially created for the purpose, such as shipping or packing, or among the various other departments.

Special departments.—About one-half of the business concerns returning questionnaires reported that they do not maintain traffic departments. Of these, 16 per cent have set up other departments to handle some or all of their traffic and transportation functions. Delivery departments comprise 60 per cent of these, being found almost entirely in small or in medium-sized organizations; shipping departments make up 30 per cent of such special departments; while transportation, receiving, warehouse, packing, billing, and mail departments are found in certain scattered instances.

Various departments.—When neither a traffic department nor a special department is designated, if traffic matters are handled they usually are looked after by one of the following departments in the order named: Executive (consisting of the president, vice president, manager, secretary, and treasurer); production; purchasing; sales; office; accounting.

OFFICIAL RESPONSIBLE

IN FIRMS HAVING TRAFFIC DEPARTMENTS

Of the concerns having traffic departments, 26 per cent, or over one-fourth, indicated that the traffic department reports directly to the president of the company; 16 per cent directly to the general manager; 13 per cent to the vice president; 4 per cent to the officer bearing the title of plant, production, factory, or works manager or superintendent; 3 per cent to the official bearing the dual title of vice president and general manager; 3 per cent to the sales manager; 2 per cent to the manager; 2 per cent to the secretary of the company; 2 per cent to its treasurer; and 2 per cent to the secretary-treasurer.

In the rest of the cases, amounting to 27 per cent, the traffic departments were found reporting to 21 combinations consisting of two officers each, 6 combinations of three officers each, and 1 combination of four officers.

IN FIRMS NOT HAVING TRAFFIC DEPARTMENTS

When there is no separate traffic department, it is of interest to know what department usually does have jurisdiction over traffic matters or what official or employee is in charge.

Questionnaire replies disclosed that in these circumstances the large concerns delegate supervision over traffic matters to 10 different employees. Twenty per cent designate their shipping clerks; 15 per cent (each) name their superintendents, sales managers, or purchasing agents; while 10 per cent (each) name their general managers, office managers, or cashiers. Instances are reported where a president, comptroller, and even a car checker look after traffic affairs.

The medium-sized businesses delegate supervision over traffic activities to 21 employees. Shipping clerks are in charge in 30 per cent of these firms; office managers in 14 per cent; sales managers in 10 per cent; purchasing agents in 9 per cent; secretaries in 7 per cent; superintendents in 6 per cent; clerks in 4 per cent; general managers, treasurers, and accountants in 3 per cent each; presidents, managers, secretary-treasurers, cashiers, bill clerks, and bookkeepers, in 2 per cent each; while instances were noted where a credit manager, order clerk, or stock clerk was named.

The small concerns spread authority among 32 different employees. Shipping clerks again are first—in 27 per cent of the firms; secretaries are named in 11 per cent; managers in 10 per cent; treasurers, office managers, and bookkeepers in 5 per cent each; presidents, general managers, and sales managers in 4 per cent each; superintendents, accountants, secretary-treasurers, and clerks in 3 per cent each; and purchasing agents, vice presidents, assistant managers, service managers, warehousemen, bookkeepers, cashiers, chief clerks, billing clerks, timekeepers, and even stenographers and office boys were each listed in a few instances.

Taking firms of all sizes without traffic managers, the shipping clerk is placed in charge of traffic administration in 29 per cent; secretaries in 9 per cent; office managers in 8 per cent; managers in 7 per cent; sales managers in 6 per cent; superintendents and assistant superintendents in 5 per cent; general managers, treasurers, purchasing agents, and bookkeepers in 4 per cent each; presidents and accountants in 3 per cent each; with the remaining 14 per cent scattered among 20 additional employees.

CHAPTER IV

FUNCTIONS OF INDUSTRIAL TRAFFIC DEPARTMENTS

In outlining and defining, in a preceding chapter, the various kinds of traffic organizations, brief mention was made of the functions and purposes of each. It will be noted that each kind of department fills a specific purpose in the work incident to the handling of the traffic affairs of business concerns, although the functions of the various kinds of traffic departments may overlap in some particular phase of their activities. For example, some community (chamber-of-commerce) traffic departments audit freight bills for their members; this is a service the individual traffic department of a business establishment usually handles for itself, unless it has the work performed for it in order to serve as a check on its own efficiency. Likewise, some trade-association traffic bureaus perform the services for a community that a chamber-of-commerce traffic bureau is expected to handle; and, further, by handling traffic matters of specific interest only to individual members, it overlaps the functions of the industrial and commercial traffic department.

The functions which are described in this report pertain primarily to those of industrial and commercial traffic departments. Certain industries and branches of industry do not handle some of these traffic matters because (1) such services or facilities are not required by their business, or (2) they have completely overlooked giving the function proper attention, or (3) the duty has been delegated to a community, trade-association, or private traffic bureau for administration.

INDUSTRIAL TRAFFIC FUNCTIONS CLASSIFIED

First it may be well to state what is considered "traffic work." Briefly, traffic functions encompass the exercising of complete authority over the handling of all matters connected with the movement of goods after they are purchased and until they are received and go into stores prior to production; also, sometimes the movement from stores, through production, and into stock; also, the handling of all matters connected with the movement of goods after they are sold and come out of stock, and until they are delivered to the firm's customers. This may call either for the performance of the actual transportation, or simply for its management when the goods are moved by transportation facilities owned and operated by outsiders.

The many activities connected with the operation of a business that can properly be termed "traffic functions" may be classified into five groups—those of an administrative nature, those relating to traffic costs, to traffic services, to physical handling, and to transportation, storage, and communication. They are scheduled below.

The list contains numerous duties not usually thought of as " traffic functions " in the popular interpretation of that phrase.

TRAFFIC ADMINISTRATIVE FUNCTIONS

ADMINISTRATIVE FUNCTIONS RELATING TO INSIDE CONTACTS

Traffic functions of a general administrative character comprehend the exercising of complete executive authority over traffic management by cooperating with all departments within the organization in such things as:

- Organizing and administering the traffic department; securing adequate jurisdiction, budget, cooperation, personnel, and equipment.
- Looking after traffic for branch distributing houses, branch plants, and subsidiary companies.
- Keeping executives informed of current traffic changes and developments.
- Participating in local, State, and Federal legislative matters affecting traffic matters.
- Preparing evidence and acting as witness in court cases.
- Locating plants, warehouses, and branches.
- Determining proper size of purchase and sales orders, from transportation standpoint.
- Determining proper manufacturing design, form, and assembly of articles produced.
- Studying, designing, and experimenting with containers and selecting proper packing materials.
- Rendering periodic reports concerning the administration of all these facilities and services.
- Broadening territories in which purchases and sales can be made profitably.

ADMINISTRATIVE FUNCTIONS RELATING TO OUTSIDE CONTACTS

Contacting on the outside with local, State, and national organizations, associations, bureaus, and committees, and with competitors, carriers, service bureaus, trade associations, community organizations, and clubs in such matters as—

- Filing formal, informal, and special docket complaints.
- Intervening in rate and service cases.
- Practicing before carrier rate-making bodies and governmental regulatory commissions.
- Preparing and filing briefs for traffic cases.
- Obtaining or preventing classification and rate adjustments.
- Obtaining new freight rates and ratings.
- Obtaining transit privileges.
- Obtaining revisions in tariffs, rules, and regulations.
- Making ocean-space contracts.
- Making trucking agreements.
- Making warehouse contracts.
- Leasing rail cars.
- Arranging special services.

- Arranging average demurrage, credit, weighing, and sidetrack agreements.
- Maintaining adequate car service and supply.
- Arranging train-service improvements.

TRAFFIC COST FUNCTIONS

Traffic work relating to charges involves taking care of the administrative, technical, and clerical functions having to do with transportation costs occurring in connection with all of the facilities and companies performing the following traffic services:

- Maintaining up-to-date traffic files.
- Quoting rates and ratings.
- Preparing classification schedules and descriptions and issuing rate tables.
- Auditing transportation bills and transportation items on invoices.
- Detecting, preparing, and collecting overcharge and reparation claims.
- Debiting shippers or customers for errors resulting in expense.
- Analyzing and comparing tariffs, rates, and services.
- Detecting rate and service discriminations, undue preferences, unreasonableness, and other violations of law.
- Assembling evidence to support findings of unlawfulness.
- Preparing rate-case exhibits and statistics for use as evidence.
- Accounting for transportation expenditures.
- Paying transportation bills.

TRAFFIC SERVICE FUNCTIONS

Traffic services include administering the technical and clerical functions listed below and having to do with the services furnished by the following carriers and service companies:

Railroads; waterways—steamship, barge, and lighterage; docks and wharves; highways—motor truck and cartage; airways; mail, parcel post, and express; warehouses and storage; communication—telegraph, telephone, cable, radio, and messenger; freight forwarders; customs brokers; weighers; audit and claim bureaus and other outside service bureaus:

- Handling traffic-office management—employment, filing, correspondence, and supplies.
- Ordering and disposing of cars.
- Preparing bills of lading (" billing," as distinguished from " invoicing ") and other shipping documents.
- Routing shipments.
- Tracing, expediting, and handling embargoed shipments.
- Pooling orders.
- Consolidating less-than-carload shipments.
- Handling passenger matters.
- Handling export and import shipments, including booking cargo space, insuring marine shipments, clearing import goods through customs, and securing refunds and drawbacks on exports.

Diverting, reconsigning, stopping, and transiting shipments.
Disposing of waste.
Serving suppliers and customers in traffic matters.
Detecting, preparing, and collecting loss and damage claims.
Distributing shipments out of warehouses.
Keeping records and reporting concerning car and vessel movement, volume of traffic moving and on hand, transited goods, and department expenditures, receipts, and accomplishments.

PHYSICAL-HANDLING FUNCTIONS

Traffic functions in regard to the physical handling of merchandise embrace the managing and superintending of clerical and physical activities connected with the actual handling of goods received, stored, assembled, packed, and shipped:

Manufacturing or selecting, storing, and assembling containers and packing materials.
Operating assembling, packing, and shipping rooms.
Assembling, checking, and inspecting.
Packing.
Marking.
Weighing.
Handling shipments.
Loading and stowing.
Icing, precooling, refrigerating, heating, and ventilating.
Car spotting, inspecting, rejecting, cleaning and preparing, sealing, and recording.
Operating receiving room.
Unloading, unpacking, checking, and distributing.
Disposing of waste and containers.
Warehousing and storing.
Handling materials.

TRANSPORTATION, STORAGE, AND COMMUNICATION FUNCTIONS

Traffic functions in the field of transportation, storage, and communication have to do with insuring, purchasing, leasing, building, renting, operating, mechanically maintaining, accounting, recording, and disposing of the following kinds of privately owned and operated transportation facilities:

Railways—cars, locomotives, lines, tracks, and platforms.
Waterways—vessels, floating and marine equipment, docks and wharves.
Highways—motor vehicles, horses and wagons, trailers and tractors, garages and stables.
Airways—airplanes, landing fields, and hangars.
Pipe lines.
Plant transportation—materials-handling equipment and pneumatic carriers.
Storage—warehouses, elevators, tanks, sheds, yards, and stock piles.
Communication—telegraph, telephone, cable, radio, and messenger.

ASSIGNMENT OF FUNCTIONS FOR HANDLING

There follow a few illustrations, taken from representative industries, showing the traffic functions handled and how these duties are grouped for handling and to whom each is delegated.

The distribution of work among the 16 clerical employees of the traffic department of a middle western oil-refining company, shown in Figure 6, is set forth below. The work is of two kinds—(*a*) traffic, handled by desks A, 1, 3, 5, 7, 9, and 10, and (*b*) transportation, assigned to desks B, 2, 4, 6, 7a, 8, 11, 12, and 13.

FIGURE 6.—TRANSPORTATION FUNCTIONS PARTLY HANDLED

This large oil refinery maintains a traffic department of 27 employees, having direct supervision over traffic administration, services, costs, and transportation matters incident to the ownership of over 1,600 tank cars. Physical handling and motor-truck transportation operating functions are handled by other departments.

Chief clerk (desk A):
- Handling all matters pertaining to reconsignments.
- Handling correspondence regarding—
  - Claims, railroad overcharge, loss, and damage.
  - With railroads relative to proper charges on shipments on which rate clerks and others have been unable to effect adjustment.
  - Miscellaneous matters—advice as to refunds offered by railroads at stations, passenger matters, etc.
- Checking traffic bulletin for tariffs of interest.
- Disposing of canceled tariffs.
- Disposing of Interstate Commerce Commission reports.
- Watching tariffs for changes.
- Handling telegrams relating to—
  - Rate quotations.
  - Reconsignments.
  - Miscellaneous matters.

Chief clerk (desk B):
- Handling correspondence concerning—
  - Demurrage and storage.
  - Detention of cars.
  - Outside purchases.
  - Miscellaneous matters.
- Checking demurrage, storage, mileage, and inflammable tariffs.
- Developing status of sidetracks serving bulk plants.
- Handling revisions and changes in connection with tank cars.
- Loading foreign cars.
- Revising forms.
- Preparing requisitions for other than supplies.
- Preparing reports and statements concerning—
  - Car service.
  - Leased cars.
  - Car operations.
  - Shipments from outside plants.
  - Cars assigned for moving outside purchases.

Chief rate clerk (desk 1):
- Handling all inbound matters, rates, etc.
- Handling all matters covering the checking of bills on outside purchases.
- Checking of customers' orders.
- Furnishing rates and routings on outside purchases.
- Preparing rate statements on oil and supplies.
- Responsibility for proper handling of station shipments.
- Watching tariffs for changes.
- Maintaining rate books.

Senior mileage clerk (desk 2):
- Checking embargo notices and shipping orders to determine lines affected by embargoes.
- Arranging for equipment to handle coke and cinder loading, and recording weights, etc.
- Preparing switch list for plant No. 2.
- Handling correspondence relative to—
  - Mileage allowances and mileage equalization accounts.
  - Excess empty mileage as a result of mishandling cars.
- Maintaining mileage ledger and remitting mileage allowance to accounting department.
- Checking outside purchase invoices.
- Preparing reports relative to—
  - Earnings of leased cars.
  - Status of mileage on individual carriers.
- Assisting preparation of mileage and other related reports.

Senior rate clerk (desk 3):
- Rating and routing customers' orders.
- Furnishing rates on oil and supplies to the various departments.
- Checking of freight bills attached to notices of intended claim.
- Watching tariffs for changes.
- Maintaining routing file.

Trace clerk (desk 4):
- Tracing—
  - Weekly tracer, loaded and empty cars.
  - Special tracers.
- Preparing statements and reports—
  - Tax reports and related correspondence.
  - Statement of cars moving beyond Kansas City.
  - General statements concerning car movement.
  - Allotment report.
- Assisting in preparation of monthly report.

Junior rate clerk (desk 5):
- Preparing claims.
- Auditing vouchers.
- Checking rates on freight bills, collect and allow.
- Watching tariffs for changes.

Junior mileage clerk (desk 6):
- Compiling and maintaining book of mileage distances on various railroads.
- Assisting on other desks—
  - Car records.
  - Preparing monthly report.
- Preparing reports and statements—
  - Leased-car mileage reports.
  - Company equipment mileage estimates.
  - Recapitulation report, bad-order-car days.

Route clerk (desk 7):
- Rating and routing station orders.
- Assist in checking vouchers.
- Assist in filing of tariffs and checking tariff bulletins.

Form clerk (desk 7a):
- Preparing forms—
  - Junction or railway cards.
  - Junction letters.
  - Receipt and release forms.
  - Forms with carbon.
- Checking yard report.

Form clerk (desk 7a)—Continued.
- Filing—
  - Release forms.
  - Crude reports and letters.

Senior car-record clerk (desk 8):
- Recording car movements.
- Preparing and forwarding mileage forms on leased and other cars.
- Preparing detention and release statements.
- Checking car repair bills against car records.
- Preparing statement of delays to tank cars.

Abstract clerk (desk 9):
- Auditing main plant outbound bills.
- Responsibility for abstract files and bills of lading.
- Protecting records on reconsignments, refunds, etc.
- Abstracting inbound collect and outbound prepay freight bills.
- Checking weight and extensions on freight bills to customers, collect and allow.
- Listing bills of lading received from purchasing department, and forwarding same to accounting department.
- Keeping record of cars routed via various lines.
- Typing claims, etc.

Tariff clerk (desk 10):
- Opening mail.
- Indexing tariffs.
- Filing current and canceled tariffs.
- Making claim balance.
- Entering claims in register.
- Checking traffic bulletin against tariff file.
- Handling requisitions for supplies for both divisions.

Junior car-record clerk (desk 11):
- Recording car movements.
- Preparing forms, slips, cards, etc., and recording in car-record books.
- Assisting in preparation of and forwarding mileage forms, leased and other cars.
- Assisting in preparation of detention and release statements.
- Assisting in checking of car-record bills.
- Assisting in preparation of statements of delays to tank cars.

Senior bill-of-lading clerk (desk 12):
- Preparing bills of lading covering refinery shipments.
- Preparing instructions covering empty foreign cars.
- Preparing bills of lading covering empty company-owned tank cars.
- Preparing condition yard report.
- Preparing and typing available car report.
- Filing bills of lading.
- Correspondence in connection with the cancellation and correction of bills of lading.

Junior bill-of-lading clerk (desk 13):
- Assisting in the preparation of bills of lading.
- Preparing and typing bad-order report.
- Preparing bills of lading for use.
- Assisting bill-of-lading clerk.
- Filing correspondence of traffic department.
- Delivering bills of lading to railroads.

The assignment of duties for the members of a somewhat smaller traffic department maintained for an eastern pipe and iron foundry, shown in Figure 7, is outlined below:

Traffic manager:
- Supervising work of traffic department.
- Preparing and presenting cases before various commissions.
- Attending rate hearings and handling important trade questions with various carriers.
- Conferring with executives and different departments of this company as to the handling of business in general.
- Handling various other duties too numerous to mention.

Assistant traffic manager (stationed in the South, where several plants of this company are located):
- Assisting the traffic manager in numerous ways.
- Attending to the requirements of the plants in his district.
- Expediting export and intercoastal shipments.
- Supervising the quoting of rates for and routing of orders placed with the sales manager in his territory.
- Handling various rate matters.

Representative of traffic department (located at Chicago):
- Handling the necessary quotations, routing, etc., for the sales manager located in that territory.

Chief clerks:
- Supervising work of the traffic department in the absence of the traffic manager or the assistant traffic manager and other numerous duties in connection with the work of the traffic department.

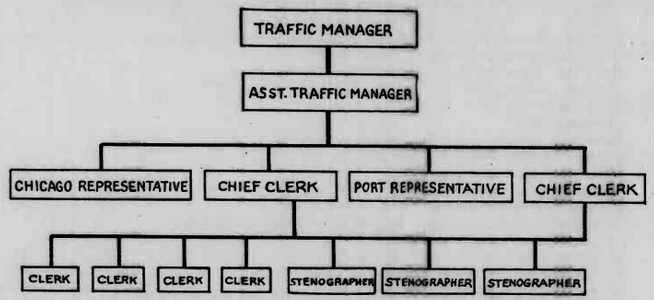

FIGURE 7.—FOUNDRY TRAFFIC ADMINISTRATION ACCOMPLISHES SAVING

An eastern pipe and iron foundry, employing 5,500 men in 7 plants and 2 warehouses, spends $5,555,000 for transportation, which includes $232,000 for plant transportation handled by plant managers. The administration of this traffic department cost $34,000, but the department recovered $52,000 during the year covered by its report.

Clerks:
- Quoting rates.
- Routing orders.
- Consolidating papers in connection with export and intercoastal shipments.
- Preparing rate statements, etc.

Representatives of traffic department (stationed at the ports through which export shipments move): Expediting the movement of material to the port and supervising the loading of same on board various vessels.

JOB ANALYSIS

The organization of a large chain-store traffic "division" or department is set forth in Figure 8. It has also definitely analyzed its work and has specifically assigned duties to its 17 members. The arrangement is shown below:

Traffic manager (responsible to merchandise director):
- Renders monthly and semiannual reports covering activities of entire division.
- Supervises functioning of division, advising each person as to the proper performance of his duties.
- Accounts to company for proper physical distribution of goods.
- Responsible for company paying just and reasonable transportation charges.
- Prepares rules and instructions for store manual.

Traffic manager—Continued.
- Coordinates division work so as to conform with company's policies and to insure smooth operation with other divisions and stores.
- Prepares shipping directions.
- Decides availability of freight routings and other modes of transportation.
- Analyzes transportation costs.
- Organizes stores' receiving departments.
- Approves cancellation and adjustment of claims for other than the full amounts.
- Arranges for marine and other transportation insurance.
- Cultivates good will and general cooperation of carriers and shippers.
- Attends meetings of traffic associations, shippers' conference, etc.
- Arranges transportation and hotel accommodations for convention party.
- Develops and supervises import department.
- Edits division bulletin.

Secretary (responsible to traffic manager):
- Handles traffic manager's dictation and filing.
- Answers general correspondence.
- Relieves traffic manager of details.
- Arranges for Pullman reservations and passenger tickets.
- Furnishes information in regard to train times, fares, etc.
- Secures refunds on unused tickets.
- Peruses and distributes division mail.
- Handles and censors requisitions for supplies.
- Keeps file of division forms and maintains record of form numbers.
- Receives visitors.

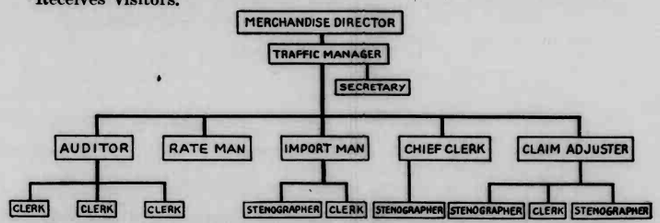

FIGURE 8.—WELL ORGANIZED CHAIN-STORE TRAFFIC DEPARTMENT

A large chain store with a well organized traffic department consisting of 17 employees. For the specific functions of each employee see pages 40–43. Job analyses of this kind are very much worth while. This department is one of the best in the country. Although costing $38,000 annually to operate, it collected about $100,000, which sum did not include estimated savings resulting from rate adjustments.

Chief clerk (responsible to traffic manager):
- Renders detailed monthly report. In absence of traffic manager is responsible for proper functioning of division.
- Secures tariffs, classifications, etc., and maintains suitable tariff file.
- Studies tariffs and keeps informed of rate changes.
- Investigates rate situation, applying for reductions where possible.
- Maintains constant watch for and investigates new and better routings and transportation service.
- Studies freight classification and arranges with shipper for proper description of merchandise.
- Assists traffic manager in preparation of shipping directions.
- Furnishes all shippers with complete shipping directions.
- Censors overcharge claims against carriers.
- Investigates and develops the use of proper shipping containers.
- Prepares and distributes invoicing instructions.
- Interviews carriers' and shippers' representatives.
- Handles with shippers their failure to comply fully with shipping directions.
- Checks freight bills for proper charges.

Stenographer to chief clerk (responsible to traffic manager):
- Maintains list of shipping points and shippers.
- Types shipping directions and rate charts.

3864°—30——4

Stenographer to chief clerk—Continued.
- Files shipping directions and all matters pertaining thereto.
- Follows up shippers for acknowledgment of shipping directions.
- Takes dictation and writes letters.

Rate clerk (responsible to traffic manager):
- Quotes transportation rates and furnishes buyers comparative landed costs on new items and new sources of supply.
- Analyzes landed cost on listed items.
- Routes all orders for new-store fixtures, tracing carloads and less than carloads, that are delayed, through to destination.
- Reviews all warehouse orders, routing to New York or Brooklyn depending on cost and service.
- Checks freight bills for proper charges.

Auditor (responsible to traffic manager):
- Renders detailed monthly report.
- Accountable for proper checking of invoices against shipping directions.
- Inspects and approves debit memoranda against shippers for violation of shipping directions.
- Handles with stores questions of overcharges in transportation.
- Accountable for obtaining and keeping up to date all data necessary for proper audit of invoices.
- Handles with stores negotiations for reduction in drayage rates.
- Assists stores in arranging disposal of waste material.
- Arranges with post office and express companies for proper storing of new-store shipments.
- Contracts with drayman and arranges for storage in new-store cities.
- Reviews shippers' orders and censors heavy express shipments.
- Carries on research work.
- Assists traffic manager in preparation of shipping directions.

Stenographer (responsible to auditor):
- Takes dictation and writes letters.

Clerk (responsible to auditor):
- Checks invoices for violations of shipping directions and prepares debit memoranda in event of violations.
- Keeps record of changes in shipping directions from freight to express, issued to shippers by buying divisions.
- Keeps monthly record of debit memoranda filed against shippers.

Clerk (responsible to auditor):
- Checks invoices for violations of shipping directions and prepares debit memoranda in event of violations.
- Keeps record of changes in shipping directions from freight to express, issued to shippers by buying divisions.

Clerk (responsible to auditor):
- Checks invoices for violations of shipping directions and prepares debit memoranda in event of violations.

Claims adjuster (responsible to traffic manager):
- Renders detailed monthly report.
- Censors all claims received from stores to see that they are properly made out, numbered, and supported.
- Files and prosecutes claims against carriers for loss, damage, and overcharge.
- Files and handles claims against insurance companies.
- Prevents claims.
- Maintains familiarity with laws governing carriers' liability and settlement of claims.
- Traces shipments.
- Interviews carriers' and shippers' claim representatives; also visits railroad claim departments and shippers when necessary.
- Visits railroad terminals, steamship piers, and public stores to inspect and check shipments received in damaged or pilfered condition.

Stenographer (responsible to claims adjuster):
- Has charge of claim department files, filing claims, and other correspondence, matching up replies, etc.
- Follows up open claims for acknowledgment and status.
- Assists in preparation of monthly and semiannual reports.
- Looks up invoices, charge-backs, and other information at behest of claims adjuster.

Stenographer—Continued.
- Takes dictation.
- Prepares outgoing mail for claim department.

Stenographer (responsible to claims adjuster):
- Takes dictation and writes letters.

Claim clerk (responsible to claims adjuster):
- Prepares claim briefs and arranges supporting papers on all claims approved by claims adjuster and auditor, for presentation to carriers.
- Verifies extension of claim amounts.
- Computes and includes in amounts of loss and damage claims proportion of transportation charges and overhead charges when in order.
- Prepares folders for filing claim papers.
- Records claims in account books and keeps records necessary for claim prevention.
- Sees that claim numbers are used by stores consecutively, reporting otherwise to claims adjuster for attention.
- Records carriers' claim acknowledgment numbers in account books, thereafter filing acknowledgments with respective claim papers.
- Records checks in payment of claims in account books, verifying amounts, closing files, and securing auditing division's receipt for each check.

Import man (responsible to traffic manager):
- Renders detailed monthly report.
- Arranges clearance and necessary warehousing of imports.
- Checks up papers covering import shipments, sending to customs broker to arrange clearance, keeping record of all cases.
- Follows up public-store cases for delivery.
- Handles correspondence in regard to illegally marked goods, and general import matters with broker.
- Advises warehouse dates to release invoices for cases moving through ports other than New York.
- Maintains complete record of shipments forwarded through outports.
- Determines cheapest method of handling large import shipments.
- Corresponds with foreign offices on all matters requiring correction.
- Compiles and makes detailed reports on imports.

Import stenographer (responsible to import man):
- Sees that necessary papers missing on any shipment are promptly secured and forwarded to broker.
- Checks import cases released, upon advice from broker, sending delivery order to the warehouse, advising numbers of cases released and public-store cases.
- Sends delivery orders covering public-store cases to warehouse as cases are released.
- Handles import files.
- Takes dictation and writes letters.

Import clerk (responsible to traffic manager):
- Maintains complete foreign order file.
- Records on back of order copy the quantities of merchandise received.
- Secures commercial invoices covering all cases shown on broker's invoice.
- Computes landed costs.
- Makes out typewritten invoices in duplicate for warehouse, and separate invoices for each department, showing actual landed cost.
- Prepares insurance certificate on each shipment and forwards to insurance broker.
- Submits to interested buyers itemized statement covering entire shipment. This statement shows full information as to name of steamer, quantity of each item received, foreign cost and landed cost.
- Maintains file of import papers on each shipment, including invoices passed by the warehouse.
- Furnishes auditing division memorandum showing foreign cost, customs, and broker's charges.
- Balances foreign bank account.
- Keeps complete detailed record of each imported item, showing shipper, shipping point, complete description of item, foreign cost, landed cost, rate of duty, how article is described for assessing duty, name of steamer on which initial shipment arrived, and other pertinent information.
- Figures landed cost on sample shipments.
- Renders monthly report of orders placed and merchandise received.

CENTRALIZING TRAFFIC FUNCTIONS

In many organizations a lack of coordination is observable in the handling of traffic affairs, usually due to the fact that no one department or individual employee is designated to look after the various matters dealing with the firm's transportation. This presents a weakness in the organization plan encouraging wasteful methods and practices, which can be overcome by making one employee responsible for all physical-distribution activities and investing him with the necessary authority to see that they are properly taken care of.

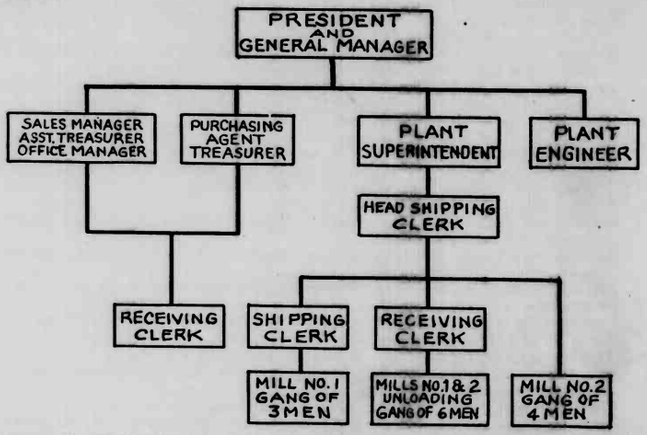

FIGURE 9.—TRAFFIC FUNCTIONS DECENTRALIZED IN MEDIUM-SIZED PAPER MILL

A pulp and paper company employing 165 men with total annual expenditures of $1,200,000 has set up this organization. The joint purchasing agent-treasurer "also acts as traffic manager" and "acts in an advisory capacity on routing material through the mill." A head shipping clerk, reporting to a plant superintendent, has a shipping clerk and a receiving clerk under his supervision, and "has direct contact with the sales manager and purchasing agent on traffic matters." The books of the company do not show the individual items, but $53,000 is the estimated total annual expenditure for transportation. An outside manufacturers' association and a freight-bill audit concern supplement the company's efforts along traffic lines.

Forty-seven per cent of the business concerns that have traffic departments do not have any other independent transportation, delivery, or shipping subdivision of the work. In fact, the larger the firm the more likely it is to place all activities of a traffic or transportation nature in one department for handling. Of the centralized types of organization, the small firms represent 19 per cent, the medium-sized 38 per cent, and the large concerns 43 per cent.

Over one-half of the firms reporting the maintenance of traffic departments do not have their traffic functions centralized. To be exact, 53 per cent of these firms have other departments, in addition to the traffic department, administer traffic, transportation, and physical-handling functions. Delivery departments are maintained in

52 per cent of the establishments thus reporting; shipping departments in 21 per cent; transportation departments in 16 per cent; receiving departments in 3 per cent; export departments in 2 per cent; and such matters as storage, carload freight, less-than-carload freight, express, mail, packing, service, passenger transportation, garage, trucks, railroads, and boats are handled by separate departments in isolated instances.

TYPICAL SITUATION WHERE TRAFFIC FUNCTIONS ARE NOT CENTRALIZED

Many perfectly good reasons are advanced for this lack of centralization; it should not be condemned in every instance. For example, a manufacturer of radios has two traffic departments, one

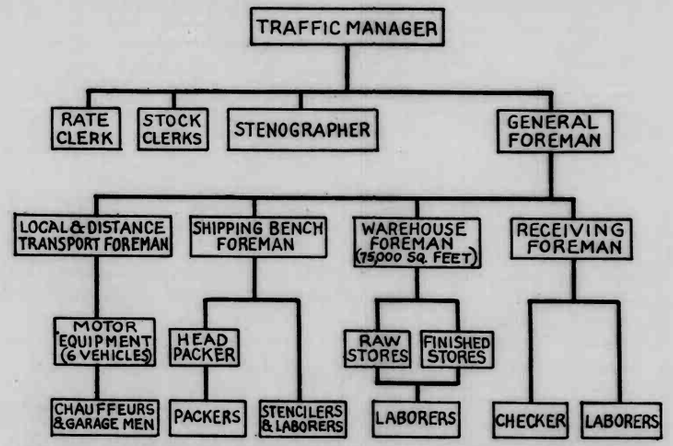

FIGURE 10.—TRAFFIC FUNCTIONS CENTRALIZED IN MEDIUM-SIZED FACTORY

Illustrating a traffic department costing annually only $6,000, in charge of all types of traffic functions—administrative, service, costs, physical handling, and transportation (for which $75,000 is spent annually). This concern employs 480 people in manufacturing a nationally known paper product requiring a total expenditure of $2,000,000 annually.

looking after inbound goods and another taking care of the outbound movement of products sold. The explanation of this unusual procedure lies in their being owned by two separate companies, with various departments duplicated. A somewhat similar organization is reported by a manufacturer of electric refrigerators.

A typical illustration of decentralized traffic functions is offered by a plant that manufactures stoves and employs 1,000 men:

The office manager is responsible for traffic duties in general.

An outside traffic counsel looks after railroad classification, rate, and tariff matters and legal and regulatory matters.

The sales department has charge of outside carrier and traffic-association contacts; keeps informed concerning current traffic changes affecting the firm's shipping; makes ocean-space contracts,

warehouse contracts, and cartage and trucking arrangements; manages telegraph and telephone services; handles mail, import, and export shipments; books cargo space; bills shipments and prepares shipping documents; routes, traces, expedites, and pools orders; and consolidates shipments.

The purchasing department is responsible for materials-handling services, the receiving room, and the selection of proper packing materials.

To the production department is delegated responsibility over warehouse and storage facilities, plant transportation, and materials-handling equipment.

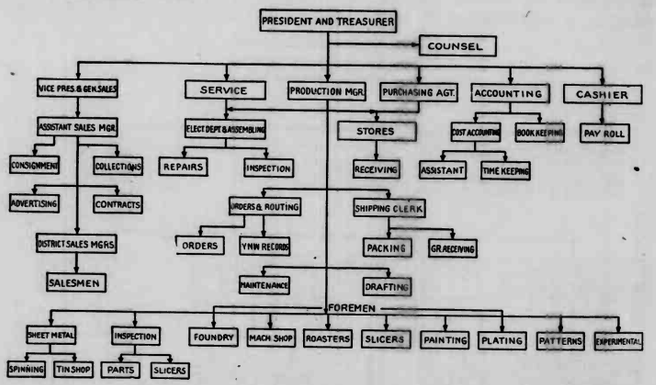

FIGURE 11.—PLACE OF TRAFFIC WORK IN A SMALL MANUFACTURING ORGANIZATION

The place of traffic work in a typical small business having 150 employees is shown in this organization chart. Store machinery and fixtures are manufactured and marketed. The company does not maintain a separate traffic department, the traffic functions being taken care of by the following subdivisions: Legal—traffic law matters; purchasing—receiving-room matters; service—overcharge and loss and damage claims; order—billing, rates, tariffs, and classification matters; sales—communication, mail, passenger, outside contacts, shipping policies, and distributing-location matters; production—packing and shipping, cars, routing, waste disposal, service agreements with carriers, and materials handling.

The shipping department has supervision over the packing room; motor vehicles, trucks, and garages; storage and warehousing services; railroad transportation; parcel-post and express services; assembling, packing, and marking; and the ordering, inspecting, preparing, loading, stowing, checking, and sealing of cars.

The receiving department has charge of materials handling, unloading of cars, unpacking and checking of goods, and the disposal of packing materials and containers.

The claim department has supervision over the detecting, preparing, and collecting of loss and damage claims.

RESULTS FROM CENTRALIZING TRAFFIC FUNCTIONS

Proof of the value of centralization of traffic functions is found in several directions. One of the most important is that it makes possible the maintenance of a special division, with a man in charge

who can devote his full time to the work and hence accomplish better results through specialization. When brought together, often there is found considerably more work requiring attention than previously was believed to be the case, thus nullifying the reason so frequently given for not having a traffic department, namely, "not enough business to justify."

A retail chain-store concern operating in the South reports:

Our many branches were securing traffic services at many places before the inauguration of our general traffic department. Freight bills were being audited on a 50–50 basis. No freight rates had ever been secured for any of our interests. Bills of lading did not contain proper descriptions, in many cases merchandise being described and taking higher rates than the goods were lawfully entitled to. Shipping supplies were being purchased in small lots by each branch at more than twice the price that is now being paid for the same materials. Since this department was added five years ago hundreds of freight reductions and several classification reductions have been secured.

Another concern in the South, a wholesale and retail distributor of coal, advises:

Payment of improper charges for demurrage and unnecessary switching and failure to collect full value for damaged goods have all been corrected through concentrated attention in traffic department.

An eastern manufacturer of steam piping and boilers furnishes further testimony to the merits of this organization policy:

Prior to the establishment of a central traffic organization, some of our plants were shipping identical commodities under different classifications, and sometimes at a freight loss. Remedy: A central organization which keeps all plants informed on changes in classification and determines the proper classification and rates to be used on analogous shipments.

A coke corporation located in the Mohawk Valley believes the centralization of traffic duties beneficial to all concerns:

It is possible, of course, to cite instances where industrial waste has resulted either from inefficient traffic administration or from lack of cooperation between a traffic department and other departments. But it seems that the most important suggestions that might be made are, first, that an efficient traffic department should be maintained by every industry, and a thoroughly trained manager, and none other, should be put in charge; and second, that all traffic and transportation affairs—and it is never difficult to distinguish same—be handled by the traffic department and by none other. Too often duties which logically should be attended to by the traffic department are in some way attached to other departments, which are never as well equipped to perform them as is the traffic department.

This subject may be concluded by quoting from the experience of a corporation manufacturing automobile bodies, comparing conditions before and after establishing its traffic department:

When the undersigned entered the employ of this company to organize and supervise a traffic department, it was found that there was not the proper contact between the industry and the carrier, and some lack of cooperation was evident in the handling of traffic matters with other departments. Freight bills were audited and claims against the carrier were handled by an outside traffic bureau. There was no activity toward correcting certain faulty or inadequate methods of packing of goods received from suppliers, and no effective steps had been taken to secure lower ratings through proper classification or otherwise. There was need for a better system of recording freight and express payments and other traffic records, as well as a closer supervision over loss and damage to shipments in transit.

This situation was corrected through a centralized traffic control, and after making a study of various problems certain reforms were established which

produced results of benefit to the industry and to the railroads as well. Through the centralized handling of all traffic matters there has been a closer contact and a better understanding with all departments, and with the transportation companies to which we look for service. All freight and express bills are audited before payment and loss and damage to goods in transit are given closer attention. Cases of faulty or inadequate packing have been taken up with suppliers, and considerable inconvenience to us has been avoided and a material saving to the carrier has resulted. Important revisions and rulings in the classification of our materials which have lowered our freight costs have been secured, and in several instances we have instructed shippers on the correct description in the billing of our goods to the carrier whereby lower ratings consistent with specific provisions of the classification were obtained. In one of these instances, the saving to us will amount to $2,000 or $3,000 per annum. We have greatly reduced our cost of demurrage; with an increase of more than 25 per cent in our inbound tonnage for the year 1928, our demurrage for that period was 50 per cent less than in 1927. We have cooperated with the local association of commerce and special committees in combating proposed rate increases and have participated as an intervener in an Interstate Commerce Commission hearing by giving testimony to justify a rate situation in which we participate to a large extent.

CHAPTER V

CONTROL AND DISTRIBUTION OF TRAFFIC FUNCTIONS

The data presented in this chapter approach the subject of industrial traffic management, as now carried out in American business establishments having traffic departments, from two angles:

First, from the standpoint of control of traffic functions by nine of the departments customarily found in businesses large enough to departmentalize their work—traffic, production, executive, shipping, sales, office, purchasing, accounting, and legal. This control may be exclusive, joint, or advisory; it may be a major or a minor activity of the department.

Second, from the standpoint of the allocation of the various traffic functions to these different departments after grouping into (1) administrative, (2) traffic-cost, (3) traffic-service, (4) physical-handling, and (5) transportation functions; including with the transportation functions those relating to storage and communication.

DEPARTMENTAL CONTROL OVER TRAFFIC FUNCTIONS

In companies having traffic departments functions of a traffic nature may be administered by being—

(*a*) Supervised wholly and directly by the traffic department.

(*b*) Supervised in part by a department other than traffic which is given exclusive control of the functions thus assigned to it, such as independently administered shipping, receiving, yards, warehouse, transportation, motor, steamship, and airplane departments. In firms with this organization plan, the remaining traffic duties usually are under the control of the traffic department.

(*c*) Supervised by a department other than traffic but considered a matter concerning which the traffic department is consulted or can give advice on its own initiative. Certain traffic duties are on the border line, being equally, for example, of an accounting, sales, or production nature. It may be difficult to determine which department should supervise these functions; but the one not in active control should be given at least advisory authority in order to keep the work properly coordinated.

An analysis of 600 industrial traffic departments, made to ascertain the traffic functions that are being handled (1) by traffic departments and (2) by departments other than traffic, brought out the following ratio:

	Per cent
Traffic departments:	
Exclusively handling traffic duties	75.0
Other departments:	
Exclusively handling traffic duties	9.3
Incidentally handling traffic duties	15.0
Jointly handling traffic duties	.7
Total	100.0

TRAFFIC DEPARTMENT

In the analytical study made of questionnaire replies submitted by firms having traffic departments it developed that traffic functions handled by traffic departments formed 75 per cent of all the citations furnished, while traffic functions handled by departments other than traffic amounted to 25 per cent. To about this degree traffic functions may be said not to be centralized for direct supervision by traffic departments. It is quite evident that some traffic functions are of a character not handled at all by some concerns; for example, pipeline facilities. In other cases, certain functions could not be supervised by the traffic department in any way other than by acting in an advisory capacity to some other department. An example of this would be a traffic department advising the executive department concerning the proper location for a plant. The following tabulation shows the extent to which traffic work is performed by the various departments:

	Per cent
Traffic department	75.0
Production department	9.0
Executive department	5.0
Shipping department	3.0
Sales department	2.0
Office department	2.0
Purchasing department	1.0
Accounting department	.5
35 other departments	2.5
Total	100.0

The 35 departments comprising the final 2½ per cent arranged in the order of the number of times they were cited by the 600 firms whose questionnaire replies form the basis of all computations in this chapter were stores, receiving, export, finance, legal, yards, mail, engineering, transportation, order, service, local branch, billing, telephone and telegraph, maintenance, technical, comptroller, materials, motor, circulation, electrical, planning, salvage, advertising, mechanical, correspondence, credit, steamship, ports, import, logging, warehouse, personnel, airplane, and delivery.

It is estimated that of the traffic work possible to be handled by traffic departments, two-thirds are actually delegated to the traffic department for handling. The remaining one-third of its natural work is handled, to a greater or lesser extent, by about 40 designated departments.

PRODUCTION DEPARTMENT

The largest and most active department in any enterprise is the one operating the business and known as the production, manufacturing, operating, factory, works, or plant department. A general superintendent or superintendent usually is in charge. It is his responsibility to keep the wheels turning. If a task must be handled in order to carry on the business, the production department usually is the one considered most capable of handling it. For this reason traffic functions were found to be handled by the production department in 9 per cent of the firms reporting. Since traffic departments are comparatively new divisions of business

organizations, it is by the production department that the functions having to do with transportation quite naturally are handled before the establishment of a traffic department. Very often certain of the physical-handling and actual transportation duties remain with the production department even after a traffic organization is set up. Furthermore, when traffic departments are established many seem to believe traffic work means office, clerical, and mental planning activities, and not those of a physical-handling and transporting nature.

Another reason why the production department so frequently continues to handle traffic functions is the close tie up necessary between the two classes of work. Raw materials and fuel reach the production department through the traffic department. Finished goods are taken away by the traffic department. This results in the constant meeting of the two departments, and it is not surprising that the dividing line indicating where responsibility over the traffic shall end and begin is not always placed where it would be expected.

The traffic functions cited as handled by the production department are:

	Per cent		Per cent
Plant transportation	7	Selecting packing materials	3
Railway transportation	6	Storage and warehouse	3
Packing rooms	6	Loading, storing, checking, and sealing	3
Materials handling	5	Telephone and telegraph	2
Pneumatic carriers	5	Communication service	1
Waste disposal	5	Messenger service	1
Motor-truck transportation	5	Documents	1
Private cars, tracks, locomotives	5	Plant location	1
Warehouse and storage	4	Truck and cartage contracts	1
Receiving rooms	4	Mail and parcel post	1
Assembling, packing, and marking	4	Highway service	1
Unloading, unpacking, and checking	4	Various functions	10
Pipe-line transportation	4	Total	100
Waterway transportation	4		
Shipping rooms	4		

The administration and operation of transportation facilities represent 48 per cent and the physical-handling branches 31 per cent of the traffic work taken care of by the production department. In traffic administrative, service, and cost matters the production department seemingly assists only when no other department is available.

EXECUTIVE DEPARTMENT

The executive department, comprised of the executive officers—including the president, vice presidents, general manager, secretary, and treasurer—is reported as handling one-fifth of the traffic work assigned to departments other than traffic. This large proportion undoubtedly is due to the predominance of the small business. A small business has few executives, and they can not divide the work strictly along functional lines. Then, too, the work is so broad and has so many facets that certain phases, such as those relating to pipe lines, marine equipment, and communication facilities, can be broken off and handled independently, at the outset at least, by individual officers.

The following are the more important traffic functions taken care of by the executive department:

	Per cent		Per cent
Communications	15	Pneumatic carriers	4
Plant location	15	Railway transportation	3
Pipe line	7	Motor transportation	3
Warehouse contracts	7	Warehouse and storage	3
Legislative	7	Private cars	2
Car orders	6	Various functions	13
Telephone and telegraph	6		
Floating equipment	5	Total	100
Messenger service	4		

As will be seen from this list, 45 per cent of the traffic work pertains to the administration of transportation and communication facilities and 29 per cent to traffic administrative functions.

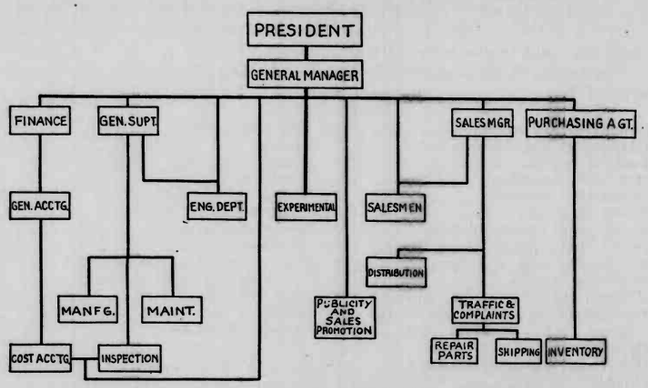

FIGURE 12.—TRAFFIC WORK NOT INDEPENDENTLY HANDLED

The personnel chart of a machinery-manufacturing concern employing 250 people shows the traffic manager reporting to a sales manager. Total expenditures made by this concern amounted to over $420,000 annually, while total transportation costs were 9 per cent of this sum, and traffic-administration expenses only $1,800 annually. The traffic manager devotes but half of his time to transportation matters, handling also orders and service. The packing and shipping room comes under the traffic manager, but the receiving room is under the purchasing agent.

SHIPPING DEPARTMENT

When the traffic department is not given jurisdiction over shipping-room activities a separate shipping department often is set up. The work handled therein is largely (78 per cent) of a physical-handling nature, as suggested by the following list:

	Per cent		Per cent
Assembling, packing, and marking	10	Receiving room	5
Parcel post	10	Disposal of waste	5
Loading, storing, and sealing cars	9	Car order, inspection, and preparation	5
Packing room	9	Selecting packing materials	4
Shipping room	9	Various functions	9
Preparing shipping documents	7		
Motor transportation	6	Total	100
Express shipments	6		
Unloading, unpacking, checking	6		

SALES DEPARTMENT

Certain traffic functions closely related to distribution are handled by the sales department. These functions are on the border line between traffic and sales work. For the most part they are the service (40 per cent) and the administrative (26 per cent) functions indicated below:

	Per cent		Per cent
Export shipments	16	Pipe-line operation	4
Warehouse contracts	13	Cartage contracts	3
Plant location	10	Mail	3
Storage and warehouse service	9	Various functions	30
Pooling orders and consolidating cars	8	Total	100
Communications	4		

OFFICE DEPARTMENT

The general office, like the executive department, often provides a catchall for the assignment of traffic functions. There are certain functions, of a communication nature particularly, that would quite naturally be expected to be handled by a department acting as a central pool. The traffic functions handled under the direction of the office manager are usually the following:

	Per cent		Per cent
Messenger service	26	Preparing shipping documents	3
Mail service	20	Pneumatic carriers	2
Telephone and telegraph	19	Various functions	18
Parcel post	8		
Motor transportation	4	Total	100

PURCHASING DEPARTMENT

The purchasing department is sometimes given supervision over the traffic functions related to its own work in a physical way. This consists of the receiving-room management and operation; also the selection and purchase of materials for use in packing.

	Per cent		Per cent
Selecting proper packing materials	30	Communications	6
Disposal of waste	9	Trucking contracts	4
Materials handling	9	Various functions	28
Receiving room	8		
Unloading, unpacking, checking	6	Total	100

ACCOUNTING DEPARTMENT

Since the accounting department often has charge of the general office, the traffic functions handled by it are practically the same as those delegated to the office department and primarily have to do with communication matters.

	Per cent		Per cent
Mail service	21	Audit transportation bills	8
Communications	18	Various functions	22
Telegraph and telephone service	18		
Messenger service	15	Total	100
Overcharges	8		

LEGAL DEPARTMENT—OTHER DEPARTMENTS

Sometimes the traffic department is not considered strong enough, not well enough trained, to handle traffic law matters. At other times the technical phases of traffic law work are handled by the

traffic department while the legal angles and appearances before the governmental regulatory commissions and the courts are delegated to the legal department. Usually, if this complicated field of law is handled at all, it is by the traffic organization. However, the legal department takes care of the work to the following extent: Transportation legislation, 10 per cent; traffic law, 9 per cent.

Just as the shipping room has been set up as an independent department to exclusively handle certain traffic functions in some businesses, receiving, warehouse, mail, and a half dozen less frequently encountered departments are also found independently organized. They seldom handle work other than of the character indicated by their name.

SPECIFIC DISTRIBUTION OF TRAFFIC FUNCTIONS

The following discussion relates to the departmental distribution of specific traffic activities and is based on the replies received from firms having traffic departments. Each was questioned concerning the specific traffic work it handled, being supplied with a list of 67 duties regarding which information was sought. (See Appendix, pp. 171–172.)

About 60 of the departments included were "joint"; that is, two or more distinctly different phases of business were reported as being handled by a single department in 10 per cent of the cases included. These were usually, although not always, found in small business organizations.

For the small business this "joint" arrangement is practically the only one that can be made. When there is but one executive, he must administer perhaps eight different phases of the work of a business; or if there are, say, four executives, the eight phases may be so divided that each executive administers one, two, or three.

But when the amount of work justifies, each executive should specialize in handling only one phase. Many firms with more than enough work to keep a traffic specialist continuously employed in its handling fail to free their joint traffic-purchasing or joint traffic-order-credit managers from these other responsibilities. In one city having a population of 300,000 there are said to be only two full-time traffic managers, yet half a hundred concerns in that city do sufficient business to justify full-time traffic executives.

CONTROL OVER TRAFFIC ADMINISTRATIVE FUNCTIONS

The traffic department, like every other branch of business, has certain duties that are performed by its executives. These are of four distinct kinds:

1. The first has to do with the executive relations of the traffic department to others, both (*a*) within and (*b*) without the company organization. Functions of this nature require cooperation, illustrated by the proper determination of a business location; and they require outside contacts with carriers, service companies, and trade, traffic, and community associations, illustrated by switching arrangements.

2. Then there are administrative functions having to do with the cost of transportation, which includes both the legal aspects and traffic or economic aspects of a tariff and rate nature.

3. Next comes administrative work relating to the physical handling of a concern's traffic; this relates to the assembling, packing, loading, unloading, and shipping and receiving room operations.

4. Finally, traffic administrative functions have to do with the administering of the transportation facilities actually owned and operated by the company.

ADMINISTRATIVE FUNCTIONS RELATING TO INSIDE CONTACTS

Cooperating by advising departments as to proper shipping policies.—This represents the very basis of cooperation between the traffic and the other departments of a business. Shipping costs are directly affected by the plans and practices of the various departments. The traffic department witnesses the need for coordinated procedure. Over 88 per cent of the firms gave replies on this point; of those replying, 92 per cent stated that the traffic department actively handled the matter.

Cooperating by keeping informed as to effect of changes.—With 95 per cent of the concerns reporting, 85 per cent of the replies stated that the traffic department is expected to keep informed on current business and legal changes which affect, or are likely to affect, the company's shipping, and to communicate such information to the other departments. An additional 8 per cent of the traffic departments might be included, for they report serving in an advisory capacity. Only 7 per cent replied that they were not called upon to serve their firms in this connection.

Plant location.—This function illustrates a traffic administrative duty requiring cooperation of the highest degree with the other company executives. Seldom can business establishments or factories, branch plants, distributing warehouses, or other business units be located or relocated by a single department. Problems of this kind require joint effort. Complete supervision in the location of plants, like all functions, must rest with some one executive. In 38 per cent of the industries having traffic departments the traffic department was reported to have supervision over plant location. In 30 per cent it exercises an advisory power, actual control being lodged with the executive, sales, production, or office department. In 32 per cent of the cases the traffic department has neither supervisory nor advisory authority. This would clearly indicate a serious weakness likely to result in waste, for plant-location problems primarily have to do with transportation matters.

ADMINISTRATIVE FUNCTIONS RELATING TO OUTSIDE CONTACTS

Contacting with trade-association and community bureaus.—Information concerning the attempt of traffic departments to participate in local, State, and national trade, traffic, and community association activities was received from 81 per cent of the firms having traffic departments. It disclosed the traffic department advising other departments in 80 per cent of the firms. While 20 per cent of the traffic departments do not, no doubt in these cases the firm's policy is against carrying on outside contacts, or its idea of traffic work may not yet encompass the value of or necessity for such contacts.

Contacting with carrier and service company officials.—Almost every traffic department has as one of its administrative functions the contacting with the officials of carriers and service companies. Replies from 96 per cent of the firms with traffic departments indicated that 91 per cent of those replying expected the traffic department to take care of such relations, 5 per cent required the traffic department's advice in such matters, while only 4 per cent made no attempt at promoting outside public relations of this character.

ADMINISTRATIVE FUNCTIONS RELATING TO TRAFFIC COSTS

Arranging agreements with carriers.—Just as plant location illustrates the sort of cooperation existing between the traffic and the other departments within a concern, the arranging of agreements with the carriers represents the character of traffic problems handled through outside contacts. Average demurrage agreements are entered into in order to keep down the penalties charged by the railroads for excess car detention; credit agreements are arranged to allow the industry a sufficient time in which to check freight bills; weighing agreements are negotiated to avoid weighing every package of standard-size containers; and sidetrack agreements are made to secure the benefits of private tracks.

Of the firms having traffic departments 90 per cent replied regarding this function. Of these, 87 per cent actually handle such matters, 4 per cent advise other departments that have charge, while 9 per cent of the departments are not even consulted.

Of the 13 per cent of departments other than traffic that negotiate such arrangements with the carriers, 5 per cent are executive, 2 per cent production, and 1 per cent each are sales, purchasing, office, and shipping.

Legal matters affecting costs.—Inquiry was made concerning the handling of traffic and transportation law matters. The specific activities illustrating the nature of this work were listed in the questionnaire as—

Assembling evidence for rate and service cases.
Filing informal, formal, and special-docket complaints.
Practicing before carrier and governmental regulatory bodies.
Preparing and filing briefs for traffic cases.
Participating in loss and damage court cases.
Intervening in rate and service cases.

It was found that traffic departments have supervision over traffic law matters in 80 per cent of the firms maintaining such departments, with the legal department responsible in only 9 per cent, the executive in 4 per cent, accounting 2 per cent, office 2 per cent, and purchasing department in 1 per cent.

When it came to the participation of the concern in transportation legislative matters, however, the percentages were traffic department 72, executive 16, legal 10, and office and accounting departments each 1 per cent. When departments other than traffic look after this, the traffic department serves in an advisory way in half of the cases and is not consulted at all by the remaining concerns. Many firms stated that they took no part in this function or that they left it to the traffic bureaus of the trade and community associations in which they held membership. Due to this, no doubt, 45 per cent failed to indicate where responsibility rested in their organization for this function.

Classification, rates, tariffs, and charges.—Perhaps the most important technical administrative work of the traffic department has to do with the rates paid for transportation, communication, and storage. Among the functions of this nature are:

Determining rate and service discriminations and illegalities.
Obtaining new rates and ratings.
Obtaining transit privileges.
Obtaining revisions in tariffs and regulations.
Securing or preventing rate and classification adjustments.
Arranging for special services.

Of the firms having traffic departments 90 per cent reported on those functions. Of these, 81 per cent have supervisory and 4 per cent advisory authority to handle. Some 15 per cent either have such matters attended to by others on the inside or outside, or do not handle such functions at all.

Ocean-space contracts.—Of the firms with traffic departments 83 per cent replied on this function. Only 56 per cent of the replies indicated that the traffic department had charge of steamship-space contracts; 7 per cent advised that other departments had such authority; while 37 per cent did not have sufficient tonnage moving via the deep sea to call for agreements of this character.

Trucking contracts.—Of the firms having traffic departments 85 per cent replied on this matter. Only 64 per cent of them have actual control and 14 per cent advisory power. About 22 per cent of the traffic departments have nothing to say about trucking contracts.

Departments other than traffic that make local highway hauling arrangements were found to be: Production, 5 per cent; sales, 5 per cent; executive, 4 per cent; purchasing, 3 per cent; shipping, 2 per cent; and office, 1 per cent.

Warehouse contracts.—Eighty per cent of the firms replied that the traffic department had control of the making of contracts in 30 per cent and its advice was asked in 25 per cent of the cases. Departments other than traffic had supervision over this function in 45 per cent of the firms.

The sales department is named in 19 per cent, executive in 18 per cent, warehouse 5 per cent, production 3 per cent, and legal, purchasing, office, and shipping departments 1 per cent each.

Here again an unstandardized policy exists. Traffic departments, when they are well administered—and no others should be permanently maintained—should not be overlooked in this phase of traffic, which is so intimately related to transportation and distribution that effective, economical management can not be had unless closely coordinated or placed under a central control.

ADMINISTRATIVE FUNCTIONS RELATING TO PHYSICAL HANDLING

Another phase of traffic administration has to do with the physical handling—the actual handling—of the goods and packages comprising each shipment received and each consignment forwarded. Work of this character relates to the packing, shipping, receiving, and

3864°—30——5

storing operations. The actual work is performed by clerks and laborers, supervised by foremen, superintendents, and chiefs who report to and are directed by the traffic executives.

Receiving.—Authority to administer the receiving operations was reported upon by 89 per cent of the firms. Authority was said to be placed with the traffic department in 31 per cent of the cases; this department served 37 per cent of the firms in an advisory capacity only, but it is not even consulted in 32 per cent of the firms.

Departments other than traffic that have supervision over the receipt of goods are: Production, 32 per cent; shipping, 10 per cent; executive, 5 per cent; purchasing, 5 per cent; receiving, 5 per cent; and warehouse, 1 per cent.

Storing.—About 82 per cent of the firms with traffic departments furnished information to show that 30 per cent of them place the administration of warehousing and storage with their traffic departments; 34 per cent of the traffic departments exercise only advisory control; while 36 per cent are excluded from participation in storage administration.

Other departments administering storing were found to be: Production, 32 per cent; executive, 10 per cent; warehouse, 4 per cent; shipping, 4 per cent; purchasing, 1 per cent; and sales, 1 per cent.

Packing.—Responsibility over packing, as reported by 85 per cent of the firms having traffic departments, was lodged with the traffic department in 23 per cent of the concerns; the traffic department advised other departments in 41 per cent of the cases, and had no part in the administration in 36 per cent.

The departments other than traffic that administered packing were: Production, 39 per cent; shipping, 18 per cent; executive, 7 per cent; sales, 3 per cent; and purchasing, warehouse, and order, 1 per cent each.

Shipping.—Of the firms with traffic departments, 95 per cent reported that in 33 per cent of the cases the traffic department exercised administrative control over the shipping rooms, and advisory control in 39 per cent of the cases. Strange as it may seem, traffic and shipping administration appears to be entirely unconnected in 28 per cent of the cases reported.

When the traffic department does not supervise the shipping rooms, the following divisions are made responsible: Production, 29 per cent; shipping, 17 per cent; executive, 4 per cent; sales, 2 per cent; warehouse, 1 per cent; and order, 1 per cent.

Packing materials.—One of the most important administrative functions connected with the physical handling of goods has to do with the determination of the safest, lightest, and most economical packing materials to be used.

Eighty-four per cent of the firms having traffic departments replied that that department supervises this function in 28 per cent of the concerns, consults with other departments to the extent of 34 per cent, and is not called upon at all by 38 per cent.

ADMINISTRATIVE FUNCTIONS RELATING TO TRANSPORTATION FACILITIES

Nearly every business concern owns transportation facilities of one kind or another. Thus equipped, they produce transportation service which they otherwise would purchase on the outside. It can

be said that to the extent that a business concern produces its own transportation, storage, and communication service it is itself in the transportation business. Traffic departments delegated with authority to administer transportation facilities are therefore both traffic

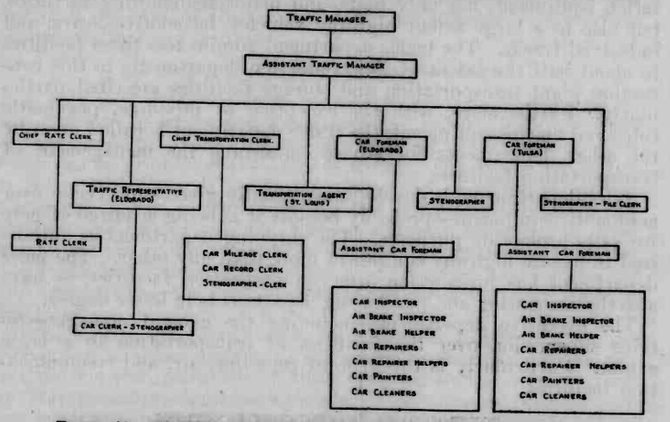

FIGURE 13.—TRAFFIC DEPARTMENT HANDLING TRANSPORTATION FUNCTIONS

Industries owning transportation equipment require the handling of functions in addition to, and quite different from, those of nonphysical traffic organizations. The traffic department of the large refining company here illustrated has direct control over the transportation functions incident to the ownership of a fleet of over 1,000 tank cars. This concern expends $2,000,000 annually for total transportation requirements and $85,000 for traffic administration. Traffic receipts amount to $550,000 annually, accruing in large part from rentals and mileage earnings on rolling stock.

and transportation departments. When the proportion of time devoted to the administration of transportation-operation matters is large, such organizations will be termed transportation departments. Administrative control over transportation facilities was reported as follows:

TABLE 2.—ADMINISTRATIVE CONTROL OVER INDUSTRIAL TRANSPORTATION EQUIPMENT

Character of industrially owned and operated equipment	Firms replying	Character of control		
		Traffic department in complete control	Traffic department with advisory control	Handled exclusively by other departments
	Per cent	*Per cent*	*Per cent*	*Per cent*
Highway	83	33	30	37
Storage	83	55	34	11
Plant	81	45	33	22
Telephone and telegraph	73	30	16	54
Locomotives, cars, tracks	71	56	12	32
Railway line	64	44	10	46
Marine	63	50	5	45
Pipe line and/or airway	60	39	1	60
Pneumatic tubes	60	45	4	51

Business concerns are more likely to pass the administration of transportation facilities to departments other than traffic than any other group of traffic functions. As would be expected, the production department is required to supervise the operation of transportation equipment, not only plant and materials-handling facilities, but also to a large extent highway vehicles, locomotives, cars, and industrial tracks. The traffic department administers these facilities to about half the extent of the production department; in this connection plant transportation and storage facilities are cited particularly. Furthermore, with the exception of pipe-line, pneumatic tube, and marine equipment, the traffic department is called upon by the other departments for advice concerning the management of transportation facilities.

Sales departments, it develops, are usually given supervision over aeronautic equipment—probably because it is being acquired largely for sales-promotion purposes. The shipping department is authorized to handle highway equipment more than any other. The office department has jurisdiction over communication facilities, as have also the accounting and purchasing departments in lesser degree.

The executive department—including the general manager—retains supervision over the facilities of transportation to a large extent. Particularly is this true of pipe-line, air, and communication facilities.

CONTROL OVER TRAFFIC COST FUNCTIONS

Practically every traffic department has exclusive and direct control over the technical and routine clerical functions having to do with transportation charges. Out of 600 firms with traffic departments, 598 report that this function is under the direct supervision of the traffic department in 92 per cent of the organizations, under advisory control in 2 per cent, and is either not handled or is handled by others in 6 per cent.

A dozen or more functions may be included under this heading:

Maintaining tariff files.
Quoting rates.
Preparing rate tables.
Making classification schedules.
Analyzing tariffs.
Comparing analogous and competitive rates.
Auditing transportation bills.
Auditing transportation items on invoices.
Preparing, filing, and collecting overcharge claims.
Paying, or approving for payment, transportation bills.
Preparing rate-case exhibits.
Routing shipments.

These duties are both technical and routine clerical in nature. The quoting of rates and maintenance of tariff files illustrate routine clerical duties; and the analyzing of tariffs and comparison of competitive rate situations represent technical duties.

The making of warehouse, trucking, and ocean-space contracts is an administrative traffic-cost function that has already been considered. (See p. 57.)

To show how completely the traffic department has occupied this field, the audit of transportation bills may be taken. The traffic department handles this function in 94 per cent of the cases cited. Since this work is closely related to the audit of other bills, as would be expected the accounting and office departments each perform this work in 2 per cent of the cases and the executive and purchasing departments in 1 per cent each.

CONTROL OVER TRAFFIC SERVICE FUNCTIONS

Not only is it necessary for a concern to know its transportation costs, but also to secure the full amount of service, of the highest standards, that the money expended will purchase. Transportation service can be graded on the basis of speed. The faster the service the greater the cost. When faster service can be obtained without an increase in cost a firm requiring fast service reduces its transportation cost just as surely as when it secures a reduction in rates. Or, expressed in another way, when the more complete use of vehicles or cars can be obtained—by heavier loading or perhaps by the use of shorter routes—the cost of transportation is cut and waste is eliminated.

Traffic service functions have to do with such matters. They can be classified as those relating to the traffic moving via outside carriers and via transportation facilities operated by the concern itself. The transportation facilities which must be managed include railway, waterway, highway, airway, pipe-line, storage, communication, express, mail, messenger, forwarding, weighing, and others of less importance.

The specific service matters that are handled by traffic departments deal with the determining of the agencies and the class of service to use (routing); preparing loading instructions (pooling, consolidating, distributing); ordering of the service (car orders, shipping orders, routing orders); preparing shipping documents (bills of lading); assuring protection (marine and fire insurance); controlling while in transit (tracing, expediting, diverting, reconsigning, stopping, transiting); placing disposition instructions (setting-in, spotting, and pulling cars); releasing shipments (clearing through customs, delivering bills of lading and other documents, paying charges due, filing bond for missing documents); inspecting shipments on delivery; and preparing demurrage records and other departmental reports concerning traffic matters.

Loss and damage claims.—With reference to the detection of losses or of damage to goods incident to their transportation and the preparation, filing, following up, and collection of claims from the carriers, 78 per cent of the firms reported that 92 per cent of their traffic departments are responsible for such matters, while 4 per cent serve in an advisory capacity, and 4 per cent are not consulted.

Imports and exports.—Eighty per cent of the firms reported their traffic departments handling 63 per cent of the work incident to shipping exported and imported goods, while 15 per cent exercise advisory control. In 2 per cent of the cases the purchasing department handles import shipments; in 4 per cent the sales department

handles exports; while in 11 per cent an independent export or foreign department is set up to handle such matters.

Booking cargo space.—Of the 78 per cent of the firms replying concerning this function, 55 per cent show their traffic departments performing this service; 10 per cent additional serve in an advisory capacity. Many concerns never book cargo.

Preparing shipping documents.—About 96 per cent of the firms report 64 per cent of the traffic departments handling and 22 per cent advising on the preparation of shipping documents.

In addition to the traffic-department activity, the shipping, production, sales, office, accounting, purchasing, order, and executive departments, in the order shown, were indicated as handling this function.

Pooling orders and consolidating cars.—The replies show 87 per cent of the firms stating that 70 per cent of the traffic departments arrange to consolidate less-than-carload shipments into carload lots, while 20 per cent serve the other departments in the performance of this function. The following other departments consolidate shipments: Sales, 10 per cent; shipping, 4 per cent; production, 2 per cent; and purchasing, order, office, and executive, 1 per cent each.

Passenger service.—Some 83 per cent of the firms reported that 65 per cent of the traffic departments look after passenger-service matters, while 12 per cent additional render advice to other departments. When this function is handled by a concern it nearly always is delegated to the traffic department. The sales and general-office departments in a few cases supervise passenger-traffic matters.

Mail and parcel-post service.—While only 73 per cent of the firms having traffic departments furnished information concerning their policy of handling first, second, and third class mail matter, 84 per cent replied regarding parcel post. Only 18 per cent of the traffic departments supervise mail matter, but 48 per cent control parcel-post shipments. Traffic departments exercise advisory control over mail matter in 22 per cent and over parcel post in 19 per cent of the firms. In addition to the traffic department, mail service is supervised by the various departments to the following extent: Office, 26 per cent; executive, 12 per cent; accounting, 7 per cent; production, 5 per cent; sales, 4 per cent; shipping, 2 per cent; and independently organized mail departments, 8 per cent.

Fourth-class mail service is supervised by the following departments other than traffic, and to the extent indicated: Shipping, 20 per cent; office, 9 per cent; production, 5 per cent; mail, 4 per cent; executive, 3 per cent; sales, 2 per cent; accounting, 2 per cent; and purchasing, 1 per cent.

Express service.—The movement of goods sent by express is supervised by 68 per cent of the traffic departments. The fact that 90 per cent of the firms furnished data indicated an almost universal handling of this class of traffic. Some 16 per cent of the traffic departments serve the other departments in an advisory capacity. The following departments also supervise the express service: Shipping, 12 per cent; production, 3 per cent; sales, 2 per cent; and office, 2 per cent.

Railway service.—Service rendered in connection with shipments moving via rail, such as tracing and expediting, as reported by 93 per cent of the firms, indicated 90 per cent of the traffic departments performing this service and 4 per cent advising the shipping and other departments that occasionally are placed in charge.

Waterway service.—Although reports from 80 per cent of the firms indicated 70 per cent of the traffic departments in charge of waterway service and 5 per cent acting in an advisory capacity, only occasionally are other departments—production, shipping, executive—delegated to render such service. Many firms, of course, have little or no merchandise moving by water.

Highway service.—Eighty-two per cent of the firms reported delegating the handling of highway service matters to 60 per cent of the traffic departments, and using the latter in an advisory capacity in 11 per cent of the cases. In 15 per cent of the companies the work is delegated as follows: Production and executive, 4 per cent each; shipping, 3 per cent; sales, 2 per cent; and purchasing and office, 1 per cent each.

Materials-handling service.—Returns from 80 per cent of the firms indicated traffic departments rendering service of a plant-transportation nature in 35 per cent of the organizations and exercising functional control in an additional 31 per cent. As would be expected, production is the other department usually in charge of this service, with the purchasing, executive, and shipping departments serving in lesser degrees.

Communication service.—As reported by 76 per cent of the firms having traffic departments, only 16 per cent of the traffic organizations are in charge of the communication services and only 19 per cent additional render advisory assistance. The departments that usually supervise telegraph, telephone, cable, messenger, and other such services are: Executive, 41 per cent; production, 8 per cent; accounting, 6 per cent; sales, 6 per cent; purchasing, 4 per cent; and mail, 2 per cent.

Messenger service.—Seventy-two per cent of the firms reporting having traffic departments replied on this point. Only 10 per cent of the traffic departments handle messenger service and only 15 per cent offer advice. The departments in charge are: Office, 36 per cent; executive, 16 per cent; production, 7 per cent; accounting, 5 per cent; mail, 5 per cent; shipping, 3 per cent; sales, 2 per cent; and purchasing, 2 per cent. Many of the small firms reported having no regular messenger service.

CONTROL OVER PHYSICAL HANDLING FUNCTIONS

The physical handling functions are concerned with the actual handling of shipments. The work is both clerical and physical in nature. It pertains to both domestic movements and foreign—export and import—in relation to freight, express, parcel-post, and mail shipments, inbound and outbound.

The physical handling functions will be considered under four headings; namely, receiving, storing, packing, and shipping.

Receiving.—While 42 per cent of the 600 firms under analysis place their receiving rooms under the jurisdiction of their traffic departments, 32 per cent designate their production departments, 10 per cent shipping, 5 per cent purchasing, and 5 per cent executive, and 5 per cent have set up separate receiving departments. Half of

the traffic departments that are not responsible for operating the receiving rooms are called upon for advice.

The physical handling functions incident to receiving require the acceptance of shipments from carriers, weighing and checking of packages and their contents, unpacking, inspecting, distributing or storing, disposing of used packing materials and waste, and the keeping of records of shipments and cars received, and of loss and damage claims.

With reference to just one of these duties, the disposal of used containers and waste, it was found from the reports of 78 per cent of the firms that 36 per cent of the traffic departments handle this function and 15 per cent are consulted concerning it. In 36 per cent

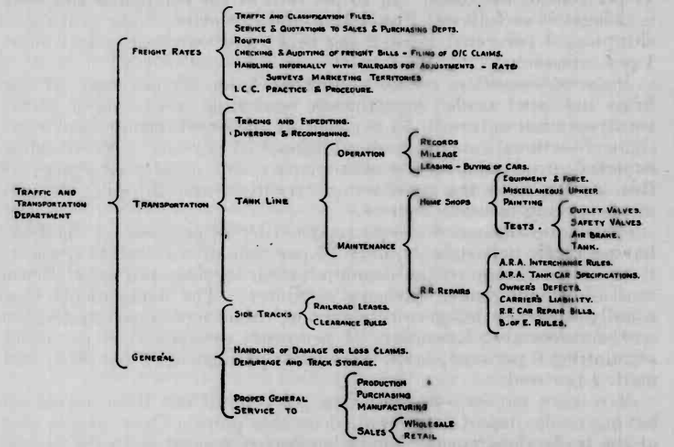

FIGURE 14.—TRAFFIC FUNCTIONS HANDLED BY LARGE OIL COMPANY

Functional chart of a large oil company's traffic department in charge of traffic administrative, cost, service, and rail-transportation matters. Direct control over the physical-handling and highway-transportation functions is not exercised.

of the firms the production department disposes of waste, in 9 per cent the shipping department, 7 per cent receiving, 6 per cent purchasing, 3 per cent executive, and 2 per cent sales.

Storing.—The physical-handling functions incident to the storage of goods requires the checking in, weighing, trucking, stowing, piling, tiering, insuring, checking out, and recording of goods.

While 47 per cent of the traffic departments were reported, by 80 per cent of the firms, to have direct control over storage, 32 per cent of the firms designate their production departments, 10 per cent executive, 4 per cent shipping, 1 per cent each their purchasing and sales, and 4 per cent set up independent warehouse departments. When not handled directly, the traffic department exercises advisory control in 25 per cent of the firms.

Packing.—The packing rooms sometimes assemble and always check, inspect, and list the goods received for shipment. They may

purchase containers (either set up or knocked down) or designate selected types for packing purposes; some of them construct containers. The packing operation requires the preparation of the container and goods for packing, the packing or wrapping, the closing of the package, and its marking.

Regarding these operations it was found, from the reports of 85 per cent of the firms having traffic departments, that 29 per cent have direct charge, 35 per cent advisory control, and 36 per cent no control whatever.

While only 29 per cent of the packing rooms are directly controlled by the traffic department, 39 per cent are supervised by production, 18 per cent by shipping, 7 per cent by executive, 3 per cent by sales, and 1 per cent each by purchasing, warehouse, and order departments.

Shipping.—From 95 per cent of the firms reporting it was found that 46 per cent delegate direct supervision of shipping to the traffic department, 29 per cent to production, 4 per cent to executive, 2 per cent to sales, 1 per cent each to order and warehouse, and 17 per cent to independent shipping departments. The traffic department also exercises advisory control in 39 per cent of these cases.

Often included in the shipping-room functions are the preparing of bills of lading and other documents; ordering of cars, trucks, or vessels; inspection and preparation of equipment for loading; trucking; checking; stowing; car sealing; weighing and recording.

Where independent shipping rooms are maintained, 96 per cent of them exercise direct control and 2 per cent advisory control over car ordering, car inspection, and car preparation to receive loads. The executive departments of 12 per cent of the firms take care of the ordering of cars, however. Likewise, 42 per cent of the shipping rooms directly handle the loading, stowing, checking, and car sealing, and 29 per cent exercise advisory control when the production department is in charge.

CONTROL OVER TRANSPORTATION FUNCTIONS

Many business firms own and operate at least some equipment used to provide transportation, communication, or storage services which otherwise would have to be purchased from common carriers or contracting companies. The facilities and vehicles privately owned for the movement of industrial traffic include—

Railway—Track lines, structure, cars, locomotives.
Waterway—Vessels, floating equipment, docks, wharves, transit sheds.
Highway—Motor and horse-drawn vehicles, garages and stables, and repair equipment.
Airway—Airplanes, landing fields, and hangars.
Pipe line—Storage tanks, pipe lines, and pumps.
Communication—Telegraph, telephone, cable, radio, and messenger.
Plant—Pneumatic carriers, conveyors, cranes, and other materials-handling equipment.
Storage—Elevators, sheds, warehouses, yards, and stock piles.

Traffic departments not only look after the administration of such equipment and the traffic services in connection with it, but often are responsible for its operation. Like common carriers,

private-carrier operations involve work of an accounting, financial, engineering, construction, maintenance, and operating, as well as legal and traffic, nature.

Railway transportation.—Concerns in certain lines of business—logging, mining, manufacturing—sometimes own "tap lines" or industrial railways. Reports from 64 per cent indicated traffic-department supervision in 15 per cent and advisory control in 10 per cent. In 56 per cent of the firms the traffic department does not handle but instead, to the extent indicated, the production (42 per cent), executive (12 per cent), or sales (1 per cent) department is in charge.

Private freight cars and locomotives are owned more often than are railways. Also, of course, sidetracks frequently are owned. Replies from 21 per cent indicated the traffic department to be directly in control of cars and locomotives in 18 per cent and exercising advisory control in 13 per cent. In 44 per cent of the firms other departments are given control: Production, 23 per cent; executive, 10 per cent; and sales, 1 per cent.

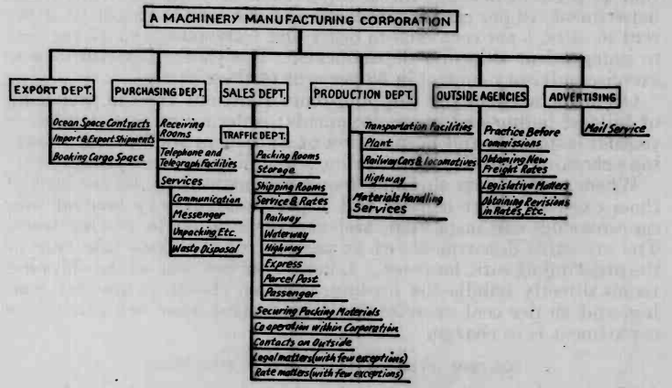

FIGURE 15.—TRAFFIC FUNCTIONS SCATTERED

A machinery manufacturing concern, spending about $4,000,000 annually, 5 per cent of which is for transportation, has the traffic-department set-up shown above. The traffic work is under the sales department and there is lack of centralization of traffic functions. Eleven thousand dollars, representing 5 per cent of total transportation costs, is spent for traffic administration.

Water transportation.—A few large firms favorably located own marine equipment of one kind or another. Reports from 63 per cent of the firms indicate traffic-department direct control in 6 per cent and advisory control in 4 per cent. Other departments were given the responsibility of carrying out such duties in 50 per cent of the companies having them, as follows: Production, 29 per cent; executive, 14 per cent; sales, 2 per cent; and office, 2 per cent.

Highway transportation.—Eighty-three per cent of the 600 firms with traffic departments whose questionnaire replies are analyzed in this chapter reported that in 21 per cent of their organizations the traffic department had supervision over highway transportation and exercised advisory control in 29 per cent. In two firms out of every three a department other than traffic has supervision: Production, 34 per cent; shipping, 12 per cent; executive, 10 per cent; office, 5 per cent; sales, 3 per cent; purchasing, 2 per cent; and warehouse, 2 per cent.

Airway transportation.—At the present time only an occasional industry owns its own air-transport equipment. In such instances the sales department is given supervision as often as is the traffic, for, as already remarked, the use to which the equipment is put is largely sales-promotion work.

Pipe-line transportation.—Answers to the request for information concerning the ownership of pipe lines came from 60 per cent of the 600 firms to the effect that traffic departments exercised direct control in 3 per cent and advisory control in 2 per cent. But only 7 per cent of those replying, or 25 concerns, had pipe lines. Production, executive, and sales were the departments other than traffic said to handle pipe-line operations.

Communication.—Seventy-two per cent of the firms furnished data to show 21 per cent of their traffic departments exercising supervision and 23 per cent advisory control over telegraph and telephone communication facilities. Very few firms were found actually owning such facilities. When not handled by the traffic organization, executive, office, production, accounting, and purchasing departments, in the order listed, have charge.

Plant transportation.—The facilities used to move materials between local plants or operations and within plant areas were reported by 81 per cent of the 600 firms to be directly under the charge of the traffic department in 30 per cent of these companies. Traffic departments exercise advisory control in 31 per cent. Besides the traffic department, the production department was invested with direct control in nearly every case; other departments shown to be occasionally in charge were executive, shipping, and warehouse.

Plant transportation is carried on by facilities of many kinds. As illustrated by pneumatic conveyor tubes, 83 per cent of the firms stated that their traffic departments look after these facilities in 27 per cent and act advisory to other departments in 34 per cent. Departments other than traffic assigned direct control over such facilities are production, executive, shipping, office, and sales.

Storage facilities.—Eighty-five per cent of the firms reported the traffic department exercising direct control over warehouses and other storage facilities in 39 per cent of the cases, and advisory control in 26 per cent. Other departments administering storage areas are production, sales, executive, shipping, warehouse, and purchasing.

RÉSUMÉ OF DEPARTMENTAL CONTROL OF TRAFFIC FUNCTIONS

From what has been shown in this chapter concerning the control over the industrial traffic functions the following conclusions may be drawn:

1. Traffic departments, taken as a whole, are given direct control over (*a*) the administration of traffic matters, including the legal and regulatory traffic functions; (*b*) traffic service functions; and (*c*) transportation cost functions.

2. Traffic departments are given direct control, but to an even greater extent advisory control, over the physical-handling functions. That is, they supervise such matters in about 40 per cent of the cases.

3. Traffic departments have still less direct or advisory control over transportation facilities. However, such facilities are owned by industrial enterprises only to a comparatively limited extent.

4. Traffic-department advice is sought in particular by the other departments that supervise highway, storage, and materials-handling facilities, receiving, packing, and shipping rooms, and the services connected with such facilities.

5. Traffic departments, to a great exetent, are not authorized to handle the traffic functions properly belonging to them. Other departments, for no apparent reason, too often have charge of traffic work. This results in a lack of coordination and centralization of activities that is said often to lead to waste.

Numerous traffic functions that could be administered are not handled by traffic departments—estimated to average as high as 15 per cent in concerns that have traffic departments. When no traffic department is maintained, the percentage of traffic work that is neglected is much higher—perhaps 50 per cent.

6. There is an apparent lack of standardization in industrial organization policies with reference to the delegation of responsibility over traffic functions. Every kind of situation is represented. While a lack of standardization in organization policy does not necessarily indicate wrong practice, it brings about a condition difficult to analyze. Functions of a like nature can and, it is believed, should be placed under a centralized direction, other things being equal.

CHAPTER VI

REASONS GIVEN FOR HAVING TRAFFIC ADMINISTRATION

One of the major points on which this survey sought light was the policy adopted by commercial and industrial enterprises throughout the United States with reference to setting up machinery for administering their traffic activities. What are the policies of American establishments regarding the maintenance of one or more employees for the express purpose of managing the traffic functions?

Many reasons may be offered both for and against the inclusion of a traffic department as an integral part of a company organization plan. First consideration will be given to the suggestions advanced why a concern should maintain its own traffic organization. These reasons are classifiable under a half-dozen headings:

GENERAL NECESSITY

A traffic department as an integral part of the organization is widely recognized as necessary, not only to assist in the productive and distributive phases of the work, but in order actually to keep a firm in business. The basic reason for this is economy. It does not profit a company to transact a huge volume of business without financial return. Waste must be eliminated and savings made, to accomplish which traffic administration is considered indispensable.

A Pennsylvania manufacturer of heaters and castings suggests the need for a traffic department because of the importance of transportation to business:

> Transportation plays a very important part in modern business, and the network of traffic regulations is so complex that we feel it imperative for a concern to maintain an experienced, thoroughly trained group to handle problems of this sort if the company's transportation is to be taken care of in the most efficient way.

An Illinois refiner of petroleum products remarks:

> Industry as a whole does not seem to realize the possibilities for benefits that would accrue through scientifically directed traffic departments. There are exceptions, of course, but the company that has realized the importance has a distinct advantage over its competitors.

The manager of an Alabama lumber company says:

> Our whole business experience has developed many instances of waste and loss resulting from lack of attention to traffic matters or lack of cooperation between traffic and other departments. This phase of business should have complete and competent attention in any business organization.

It is in the larger concerns that this is generally appreciated:

> Of course the large shippers and manufacturers throughout the country already realize the importance of having a traffic department to look after

their traffic and transportation matters; and others who are members of organizations or associations, or boards of trade, contribute to maintain a traffic department from which they derive much benefit.

The transition in methods of handling traffic matters in an industry from a decentralized situation to the building up of an adequate organization is outlined in the following quotation:

Up to 12 years ago traffic matters on inbound freight were handled by the secretary of the firm; and matters in regard to outbound or shipping were handled by the general superintendent. A receiving clerk handled all other freight matters relative to inbound freight; a shipping clerk handled all outbound freight.

The firm then decided to secure the services of someone to become traffic manager. * * * After three months' work he was fully aware that the department required complete revamping if any real results were to be had, and he laid his plans before the members of the firm, backed up with sufficient data to show substantial losses they were having in the handling of their inbound freight. The result was that he was granted authority to go ahead with his plans of reorganization. It required about five years to bring the department up to the present standard. Remember that up to 1927 the freight department was considered an expense to the firm and now it is a major activity in close touch and cooperating with all departments.

NECESSARY TO THE OPERATION OF THE BUSINESS

That a traffic manager or department is indispensable to the operation of many business houses is revealed by the survey. A chemical concern having its headquarters in New York City, employing 3,000 men in five plants and distributing its products through the aid of 25 warehouses, reports: "Our firm could not get along without an efficient traffic department." Another large firm advises:

Our organization could not function without a traffic department. We have 5 warehouses, 132 plants, 320 grocery stores, and about 7,000 employees. We are constantly applying corrective measures as new conditions arise. We have a complete understanding with all our departments, and they consult us in all matters where traffic is involved.

A Colorado grain company operating a chain of 220 elevators says: "Our business could not be conducted efficiently without competent traffic supervision"; and a large public utility finds its traffic department necessary to its operations:

Our traffic department was established in February, 1924, when the purchasing of fuel for power stations was placed under the jurisdiction of the purchasing agent. It was found essential to adopt a more efficient method for handling coal and other shipments which, by a properly worked out system, would result in considerable saving. This department was placed in charge of a traffic manager whose duties are to handle all problems arising in connection with various transportation difficulties, such as filing claims for rate overcharges, shortages, demurrage, and making numerous other adjustments to our advantage. His duties also consist of maintaining a detailed record of the movement of all coal and of car demurrage on all of our properties, checking rates and approving freight bills, tracing and routing shipments, expediting delivery of all materials, and systematically following up all purchase orders. This work is carried on in direct cooperation with the purchasing and stores departments.

A food-products concern with seven plants, headquarters in St. Louis, states:

We have found our traffic department very advantageous in the conduct of our business, particularly in a financial way, not only as regards saving in actual freight charges but indirectly by the more rapid and economical movement of our merchandise both inbound and outbound. In addition to the financial aspects we have found that our traffic department has been a big help in the general operation of our business, doing away with a great deal of friction that formerly existed on both inbound and outbound movements.

A medium-sized firm of metal brokers thus met the need for traffic guidance:

Our own company had no traffic department prior to 1918. During that year they established a traffic department, finding that they were greatly handicapped in the movement of goods on account of the embargoes in effect on iron and steel and not having anyone in their employ with whom to consult. This resulted in the accrual of demurrage and overcharges at an alarming rate.

To-day, without their traffic department they would be compelled to go out of business. Competition is so keen that the traffic manager is really the anchor man, and frequently his knowledge is the one thing that will enable his concern to swing a big deal.

The activities of a large Ohio manufacturer of hoists dictate the need for traffic management:

The shipping of our products, which are large and heavy, demands expert traffic management. The plant could not function very well without same.

TO ACCOMPLISH SAVINGS

The saving of money is always desirable. Since traffic administration brings about savings, it is but natural to find this advanced as another major reason for establishing a traffic organization. The savings accruing to a manufacturer of paper are worthy of note:

The approximate savings effected by this department during 1928 over practices prior to its installation, including equalized and reduced rates as taken from the shipping record, were well above $40,000; and this figure does not take into consideration the extended market area made available only through the reduction.

Many firms are beginning to keep an account of the savings credited to traffic work. One such reports:

Previous to 1920 the corporation did not have a traffic or transportation department. The cumulative savings shown in the accompanying exhibit (amounting to $185,227) are due to the efforts of the traffic department and naturally would not have been secured if the corporation had continued without such department.

One-half of the $500,000 total expenditures of a Texas lumber company is for transportation. This firm spent but $3,500 for traffic administration during the first year it managed its shipping, and reports:

All results shown (recovered $18,000 first year) in this report would have been wasted without this department. This department was installed really as an experiment, but the company is pretty well sold on the traffic end of the business now.

A Puget Sound lumber company not only makes a saving from its activities in the traffic field but passes such saving on to its customers:

All rate reductions are passed on to customers by reducing freight-allowance provision on invoices. All doors and plywood produced on the Pacific coast are sold with freight allowance to destination. Pricing is done by making a discount from list price. The base price is set at a certain number of points of discount from the established list price; and to cover freight allowance this discount is shortened to cover whatever freight rate is involved. Consequently, any freight reduction that is secured is automatically passed on to the customer in the form of a lower price, since a lower freight rate will not shorten the discount as much as a higher rate.

The savings accomplished by a Chicago traffic department also are passed along to its customers:

The growth of our traffic department has been due mainly to the consolidation of our less-than-carload tonnage and forwarding in pool cars to stated destinations on regular sailing dates. Our goods are of a special printed nature, each order being entirely different, which makes the shipping problem entirely different from that moved in ordinary pool cars. During 1927 we saved our customers better than $75,000 in their freight costs due to our method of shipping.

Practically a 200 per cent return on the cost of traffic administration is reported by a retail furniture house in California. This concern spent $241,300 for transportation and collected $23,800 in claims and in rate adjustments, while its traffic department cost it but $12,000.

A middle western newspaper stated in its 1927 annual report that the activities of the traffic department had saved for the company and its subsidiaries during the year items totaling $265,855 and reported for the succeeding year that that department had saved $418,182.

While recognizing the importance of reporting savings accomplished by a traffic department as a measure of its worth, it is generally agreed that this is by no means the sole measure, nor necessarily the best, for determining the value of a traffic department. In this connection the traffic manager of a Pennsylvania company which employs 2,350 men in three factories and spends $200,000 a year for freight and $7,300 for traffic administration while recovering $10,000 annually said:

You must appreciate that you can not judge the worth of any industrial traffic department by the actual cash savings or returns. It should be the object of an active traffic department to so educate and advise both vendor and customer that all materials will be properly classified, packed, and routed, thus eliminating the later waste of valuable time and effort in filing claims for damages and overcharges. By constantly improving this condition they will, of course, lessen the actual cash return but will be saving many unseen dollars by making satisfied customers and reducing cost of production. Many other savings in the actual cash outlay could be credited to the traffic department but, of course, can not be shown as a direct cash item. Thus a traffic department can be really indispensable to an industry and yet show very little cash returns.

TO ELIMINATE WASTE

Closely allied to the accomplishment of savings is the prevention of waste. Some concerns maintain traffic staffs for this purpose along with others. From New York an automobile manufacturer reports:

A well-regulated and properly functioning traffic department and cooperation of all departments with it eliminate waste and loss. Lack of a traffic department always paves the way for such a condition.

An Indianapolis shipper expresses the following view:

We do not believe any manufacturing company or organization having a very heavy amount of shipping via freight, or control over such shipping, can avoid monetary loss without a man to look after traffic and transportation.

A Chicago jobber of mechanical and industrial equipment credits his traffic department for the protection it affords against waste as follows:

If we did not have a competent traffic department, familiar with all phases of our business, it would be quite easy to lose many hundreds and thousands of dollars yearly.

Economies are said to be originated by traffic management. A New England manufacturer believes:

There are many cases, indeed, where an intelligent study into the methods of receiving, warehousing, and shipping goods at plant would result in tremendous economy. A traffic department is vital in this business.

And a Kansas City wholesaler reveals:

It is my experience that the traffic department can originate a great many economies if given a chance. Even if a business is run very efficiently the same still holds true.

TO RENDER SERVICE

In addition to the reasons already advanced for the establishment of a traffic department as a part of the company organization, there are various justifications predicated upon the value of the service rendered by such a department. Considering only those having to do with the marketing of a concern's products, the expansion of trading areas, the meeting of competitive conditions, and the mechanics of distribution, the following illustrations are cited:

A firm in the Middle West, distributing a product nationally, points to the service rendered by its traffic department in making possible the wider distribution of its wares:

Our wholesale activities are gradually being extended to practically every State in the Union where formerly they were confined to approximately 15 States in the territory around Chicago. We have been able to make an accurate analysis of transportation costs in other territories and have compiled schedules showing competitive rates which extend our wholesale territory to almost every State on the Pacific coast.

The presence of competitive conditions is mentioned by a commercial concern in Utah:

Our business could not exist under present competitive conditions without efficient distribution and supply, as the cost of transportation is a large part of the price of our products. Without efficient management, economical distribution would have been impossible.

The technical and routine details incident to the handling of the fruit and vegetable products of the agricultural regions are also suggested as a reason for maintaining a traffic department:

Without a traffic department our company would be practically unable to distribute fruit and vegetables all over the country as we do because we would be unable to tell when a car could be diverted on a through rate, how to route, how to get correct delivery, etc.

In order to know the proper basis for doing business, rather than guessing at costs, is mentioned as a further ground for traffic administration:

The ordinary industry of to-day that does not have a traffic department is groping in the dark. With a traffic manager the cost of distribution, in and out, is closely watched to enable the industry to compete in sales. He also sees that the industry cooperates with transportation lines in order that goods may be properly routed and rated, thereby effecting a saving.

One of the most successful traffic departments in America sums up the value of such work in the following words:

The justification, usefulness, and the tangible savings of a traffic department can only be measured by (1) the volume of raw materials shipped to point of manufacture; (2) the volume of finished products shipped to point of distribu-

tion or point of consumption; (3) the commodity shipped; and (4) the method of shipping.

When a traffic department can be justified by results based on these measurements it should be an important link in the business organization.

BECAUSE OF DEMONSTRATED VALUE

Perhaps the most conclusive proof of the worth of traffic management and arguments in its behalf are to be had from reports of the situations existing in business concerns before and after the establishment of traffic departments. An illustration of the "before" situation was furnished by the traffic manager of an Iowa company handling millwork and building material:

The most noticeable waste I found, on taking charge, was the manner in which shipments were billed out by the shipping department, no attention being given to the segregation of commodities that took the same rate or the same minimum. Thousands of dollars were lost on account of this one item.

The same was true regarding the checking of freight bills, no outside agency being in a position to realize the mixtures, minimum weights, etc., because of lack of knowledge of the manner in which the firm's business was handled.

There was considerable waste in the manner in which all claims were filed. The method used was to mail out an invoice to a customer for a bill of goods, post the item on the debit side to the railroad company's account, and send a statement once a month covering all of the various items so charged during that month. In the meantime, credits were made but no method used to credit the correct item. Consequently, the account was never balanced and I found it necessary to charge off hundreds of claims because they were outlawed.

The situation prior to and following the establishment of a traffic department in a Wisconsin furniture factory is reported below:

Before we had a traffic department the handling and purchase of transportation was made everyone's business with disastrous results not only from the standpoint of economy but from a service standpoint as well. The following are a few glaring examples:

All shipments were left to the judgment of a shipping clerk who knew practically nothing of the technicalities of freight classifications, routing, and freight rates.

Crating and boxing were left to the discretion of the production department, which knew nothing of the carriers' classification requirements, difference in ratings on the same article when packed differently, or the hazards in transit.

Shippers of raw material routed and actually bought all transportation on raw materials purchased by our purchasing department regardless of the fact that we paid the freight; and in many instances they chose methods of shipping that were costly to us.

When quoting on a delivered basis our salesmen estimated the freight. When too much was added for transportation, they generally lost the order; and when they failed to add enough the difference had to be charged to profit and loss.

Our service suffered to no small extent due to our failure to select the most serviceable routes at rates that were right.

The above gives some idea of the most glaring conditions that resulted because the purchase of transportation was made everyone's business. Now all shipments are made under the direction of experts who thoroughly understand the means of getting shipments to their destination with the least possible delay and at the lowest possible cost. All changes in the preparation of goods for shipment are now passed upon by some one familiar with the hazards in transit, and the rules and requirements of the carriers, all of which results in a substantial saving not only to the shipper and the consignee but to the carriers as well. All orders placed for raw materials are properly routed so as to insure the quickest possible service at the lowest possible cost. All quotations made by the sales department are accurate not only as to manufactured costs, overhead, and profit, but the transportation charges also are correct.

The traffic manager of a steel foundry and machine works sets forth his experience as follows:

We have had complete cooperation since I have been traffic manager and have made many improvements over those prevailing prior to that time, not because of lack of cooperation but because they did not know traffic. Illustrations of waste eliminated by some of the improvements follow.

The wrong classification of commodities was corrected. Payments for car service in 1926 were $4,163 and in 1927 only $397. The weighing of cars cost $910 in 1926 and only $55 in 1927 because prior to 1927 the cars were weighed on railroad scales instead of our own scales with our own power.

The first nine months I was with these companies their costs for demurrage and weighing were cut $6,039, which includes only the waste on these items.

During this period traffic costs were cut approximately $15,000. I have seen overcharge of one freight bill as high as $332, and I am still collecting overcharges on bills dated back in 1926.

Freight rates were found in very bad shape on all their commodities. On sand alone they were paying 45 cents per ton too much, and were using about 20,000 tons per year.

Our freight bills amount to approximately $500,000 per year. In 1928, when reduced freight rates began to show up in the results, our traffic costs were cut about $25,000 and in 1929 will be further reduced.

Out in New Mexico a lumber manufacturer and distributor has found a traffic department well worth having as measured by conditions before and after its establishment.

As lumber and its products are sold on a delivered basis, it is compulsory that the sales department be provided with accurate rates and routes. Prior to the establishment of the traffic department, rates were quoted by carrier that in many instances exceeded lowest combination rate; the result was the loss of a good many sales. Even where sales were made there resulted a loss of the difference between the transportation cost based on carriers' quoted rate and the lowest available rate. Still other cases resulted in actual loss due to the carrier quoting lower rates than actually applied.

Another instance that may be cited is loss due to different minimum weights of carriers or rate territories, without which information the sales department would accept an order short of the minimum weight, resulting in payment of charges for dead weight.

Waste of money due to demurrage on cars of common-carrier ownership, while on private logging roads, has been entirely eliminated by traffic department.

With establishment of the traffic department these losses no longer occur.

In industries in all parts of the country and engaged in all kinds of business conditions such as those cited above indicate, for various reasons, the value of traffic management.

CHAPTER VII

REASONS OFFERED FOR NOT HAVING TRAFFIC ADMINISTRATION

This survey of the traffic-management situation in American business covered not only enterprises of all sizes but those in all the major industries as well, located in both urban and country districts of every section of the United States. A few large companies, a great many medium-sized firms, and the majority of small establishments[1] were found to be operating without traffic departments. In some cases the reasons offered for not adopting such an administrative policy are well founded, but only by a weighing of the facts surrounding each specific case can the correctness of this decision be determined.

For the purposes of this chapter the phrase "traffic department" can be considered equivalent to "traffic management." As pointed out on page 8, there is a distinct difference between these terms. A concern may "manage" its traffic activities in a perfectly satisfactory manner without setting up a special "department" for the purpose; but few concerns of size can, or do. Small businesses seldom are departmentalized; but this does not necessarily mean that the various activities of a small business are not wisely and adequately administered.

Fifteen reasons were offered for not maintaining traffic departments. Four of these had to do with the general situation in the particular business:

1. Nature of the business.
2. Size of the business.
3. Need not apparent.
4. Time not appropriate.

Four reasons had to do with the general organization policy of the business:

5. Full time of one man unnecessary.
6. Separate department unnecessary.
7. Duties can be handled by officers and employees other than traffic.
8. Outside traffic help used.

Five of the reasons given for not maintaining a traffic department related to the specific traffic situation of the particular business:

9. Total traffic volume too small.
10. Size of individual shipments too small.
11. Character of the movement makes an organization unnecessary.
12. Rate situation not complicated.
13. Kind of carrier used.

[1] The basis on which firms are classified in this report as "large," "medium," and "small" is explained on page 120.

Finally, two additional reasons were offered; these related to general administrative policies:

14. Basis on which purchase and sales contracts are closed.
15. Cost of traffic administration thought to be too high.

GENERAL SITUATION SURROUNDING THE BUSINESS

First will be discussed those reasons advanced for not maintaining a traffic department that are based on the general situation surrounding a particular business.

NATURE OF THE BUSINESS

Producers, manufacturers, commission men, jobbers, wholesalers, brokers, selling agents, and retailers are all represented in the quotation that their business "is of such a nature that traffic administration is unnecessary."

A railroad-equipment manufacturer explains:

> We have no separate traffic department, and need none, because the bulk of our product is shipped to railroads entering Cleveland, which take it away from us for their own use, either by their own track connections to our plant or through the joint switching service of the Cleveland district. Incoming raw materials are purchased partly from Cleveland mills and partly from mills in this district along the lines of the railroads that are our clients. Transportation problems, therefore, are practically nil, and that part of our business is purely clerical and of small amount.

A crushed-stone company advises:

> It appears that the nature of our business is such as to render traffic administration unnecessary. Some 45 per cent of our product, crushed stone, is shipped directly to the railroads as ballast, on which there is no transportation charge. The remainder is shipped as road stone, which in nearly all cases goes forward, freight "collect," via either truck or railroad carrier.

A large creamery company outlines the peculiar nature of its business:

> The company has a dozen branch creameries, at each of which the local manager looks after the details of shipping. At none of these is there a great deal of shipping done, except between our own houses, as our products are sold to retailers in the territory where said creameries are located. During the flush season, when we accumulate a surplus of products, same is generally shipped to California, where we maintain a selling agency, or to some other market.

The following statement from a textile mill is fairly representative of the point of view held in this industry in New England:

> Our whole traffic problem is extremely simple, most of our raw materials coming in from near-by points, either via motor truck or in carload lots, and all of our product being shipped f. o. b. factory according to the routing instructions received from our customers. The comptroller has full supervision of the traffic problem; the head shipper and clerks are under his direction. We use only two forms of containers for our product; one is a fiber-board case and the other a waterproof paper bale. Standardizing on these two units has simplified our packing and shipping problems very much.

The wholesaling, commission, jobbing, brokerage, and manufacturers' agent group of distributors in large part inclines to the belief that the nature of their business exempts it from the necessity of traffic management. A grain dealer reports: "Acting as agent; all traffic handled by other concerns"; and a Chicago firm: "We act only as sales agents for a number of industries for their output

of coke and pig iron"; and from Philadelphia comes the statement: "As this company does not manufacture any goods but acts as selling agent for various English textile-machinery plants, we are, as you might say, merely brokers."

Commission men and brokers tell the same story. A Detroit produce firm writes: "Ours is a commission business entirely. We handle about 1,500 cars per year, but have no traffic problems as we are receivers only." Holding the same view is another middleman: "We are brokers only, acting as shippers' representatives, and therefore do not have traffic problems to attend to."

This same reason for not having a traffic department is advanced by retailers. The following expressions are typical: "Our business is strictly retail"; "we are engaged only in a localized retail business"; "our business is of a local character and we maintain no traffic organization, most of our merchandise being delivered by truck."

SIZE OF THE BUSINESS

Perhaps the reason most commonly given for not maintaining a traffic manager is that the "volume of business handled does not justify it." This is a sound reason in most cases—but not always, and a careful study of the traffic situation should be made by an expert before definitely dropping consideration of the matter.

A Kansas flour mill advises:

> Our mill and grain business is a comparatively small one. We do not ship, ordinarily, over 500 or 600 cars a year. Our cashier attends to billing of cars, and the vice president and treasurer file railroad claims, of which there are only a few in the course of a year.

From a Pennsylvania steel company comes the statement: "We have only a small plant, employing about 1,000 men." A Louisiana lumber company reports: "As to a traffic department, that depends upon the size of the business. With a business like ours, around 125 cars per month, it is too much expense." A textile mill with 1,000 employees believes the "firm not of sufficient size to need this separate department."

In another section of this report will be found a more extended discussion of the need for a traffic department by the small concern. It is perhaps sufficient at this point to reiterate that this reason for not having traffic administration calls for particularly careful study before reaching a decision.

NEED NOT APPARENT

A third reason sometimes offered is that a firm does not yet see the need for a traffic department. Typical statements follow.

A rubber company employing 500 men states that a traffic department "has not been necessary to date." A shoe manufacturer says: "Our business does not require one." A food-products distributor spending over $80,000 annually for transportation "does not think one is necessary"; nor does a sand and gravel company. A livestock concern advises: "This phase of our business is hardly of sufficient scope to justify handling."

A frequent statement is: "We do not feel that one is necessary" or "we have not felt the need for such a department." The purchasing agent of an enterprise manufacturing heating, ventilating, and other equipment at several factories, with offices in England as well as in this country, writes: "We do not have a traffic department, although we do check freight bills and endeavor to route material via the quickest way at reasonable rates."

Lack of recognition of the need for a traffic department may be due to a lack of understanding of traffic functions and possibilities, and the need becomes apparent when the matter is given the attention and study that its importance merits.

TIME NOT APPROPRIATE

Another reason advanced for not having traffic administration is that the appropriate time has not yet arrived. A rice-flour mill in Texas, for example, states that it has "just organized." A Michigan beet-sugar plant finds traffic administration "not essential to our operation on account of the short time we have been in operation"; and an Ohio chemical company states that it is "a new company, with several departments not fully organized."

These are legitimate reasons. However, if other things permit the establishment of a traffic department, it would seem that the time element will be nothing more than a temporary restraining influence.

A large Oregon knitting mill tells of the "need developing at this juncture"; and an Illinois manufacturer of iron and steel products points to his "shipping department under the charge of a man who is studying traffic problems." These cases illustrate a realization on the part of some firms that their managerial requirements are not adequately met, but are going to be.

A San Francisco sugar manufacturer makes the interesting statement that, while traffic work at present is "a part of the sales organization, where we arrange for rates and check rates and routings," he is "awaiting the result of your investigation, and we hope to build a department along the lines that appear more effective than our present methods." Another concern reports:

> With respect to the purchase of raw materials and supplies, we leave the matter of transportation in the hands of our purchasing department; and with respect to sales, the matter is left in the hands of the sales department. Our traffic problems are practically nil, and are such that we do not deem it advisable or profitable to establish this department at this time. The time will come, no doubt, when this will be a very important part of our organization.

GENERAL ORGANIZATION POLICY OF THE BUSINESS

Several of the reasons offered for not having traffic administration are based upon the general organization policy of the business. The first of these is that all of the time of a traffic manager is not required.

FULL TIME OF ONE MAN UNNECESSARY

Unless all the traffic duties are centralized, many small businesses do not have enough work to keep one executive fully occupied. Prerequisite to the centralization of traffic functions is an understanding on the part of the management of what constitutes traffic work; lack of such understanding all too often results in lack of centralization of traffic duties and a consequent belief that one man can not be kept busy.

This situation is accurate in many cases. It is met in two ways—(*a*) by assigning the management of other matters, as well as traffic, to the traffic manager for handling; (*b*) by the use of outside traffic service bureaus. Adopting the first of these policies is a Pennsylvania tannery that reports: "Our traffic manager gives part-time service"; a wholesale hardware company that replies: "The volume of our business is very small, so that the traffic and transportation duties require only a small portion of one man's time"; and a paper mill employing 400 men and spending $127,000 per year with the carriers, which writes: "We have one employee part time on traffic."

Less frequently firms adopt the policy of using outside assistance to administer a part or all of their traffic. Illustrative of these is a Chicago company handling building material: "We employ a traffic expert to do such work as comes up from time to time, and pay fixed rates for each class of work." Another concern also handling building material states: "It is cheaper for us to purchase traffic work when needed than to maintain a traffic man." A lumber mill employing 100 men and having an annual transportation bill of $60,000 reports: "We employ a traffic man part time to look out for our rates in connection with other mills."

SEPARATE DEPARTMENT UNNECESSARY

The question of setting up a separate department to look after traffic matters also involves the general organization policy of a business. As would be expected, the small firm is seldom in a position to departmentalize its organization. A lumber mill states: "This is a small business and the traffic work is not large enough to come under an elaborate transportation department." A concern handling stone and gravel also points out that it has "not sufficient need to engage an entirely separate department."

It is necessary for the average small concern to combine its traffic work with the work of other departments. This is the case with a building-supplies dealer who advises: "Traffic, accounting, and purchasing are combined"; and a glove manufacturer in Indiana who writes, "We handle our transportation matters in connection with other departments."

Likewise, a separate department is considered by some unnecessary because of the local movement of their traffic. A large dry-goods store advises: "Our shipping radius is too small for a special department of this character"; and a textile manufacturer reports: "Selling bulk of merchandise in New York City and making local purchases of materials, the amount of transportation charges involved makes such a department unnecessary."

DUTIES CAN BE HANDLED BY OTHER EMPLOYEES

Due to the small size of some concerns officials or employees other than traffic are sometimes delegated the responsibility of handling any traffic activities that are taken care of. Presidents, general managers, attorneys, secretaries, auditors, sales managers, purchasing agents, assistant superintendents, foremen, and clerks of various grades are called upon to administer traffic matters.

A Missouri flour miller says: "Our president is a former traffic manager." A food-products manufacturer reports: "Traffic is handled by our general manager, as our organization is too small to operate separate departments." A chemical and drug manufacturer states: "Secretary checks all freight bills, and in case any question arises as to freight matters we get our information direct from our local shippers' organization." A lumber company has no traffic manager "because our auditor is able to handle the work, being familiar with it."

OUTSIDE TRAFFIC HELP USED

A further reason given for not having traffic administered within the organization is that adequate outside assistance in such matters can be procured at less cost. Just as an outside attorney is retained to furnish legal advice and a certified public accountant is called in periodically to assist and supplement the work of the bookkeeper, traffic experts on the outside are depended upon to furnish administration of shipping matters. Such a policy results in a weaker organization than would be the case if the traffic executive were a full-time employee of the firm, hence there must be some compensating factor. This is found in the lower cost of such services.

Various outside organizations are looked to for help. Many firms lean on their community traffic bureau—a part of a chamber of commerce; others procure assistance from their trade-association traffic bureau. Assistance can be had in some cities from public traffic bureaus or from professional traffic experts. Many business men believe it possible to receive adequate assistance from the traffic organizations of their suppliers, or the carriers, or their customers.

The following quotation illustrates how a small hardware business operates without a traffic department by using a local community bureau:

> Owing to the size of our business it is not practical for us to maintain a regular traffic department. Our head stock clerk checks our freight bills against the bills of lading received from manufacturers. He is provided with the necessary classifications and a card index of the rates from the principal points from which we receive shipments.
>
> After he has checked the quantities, the weight, and the rates on the freight bills, they are passed to the cashier, who lists them as to shipper, items covered, date, number of freight bill, and amount. The bills are then paid.
>
> About every three months we turn over to our local freight bureau—which is an organization maintained by shippers—all the freight bills to be audited.

The following concerns also look to community bureaus for service: A Texas lumber manufacturer: "We depend upon our chamber of commerce for all traffic problems." A North Dakota grain distributor: "When it is necessary to secure special rate and routing information, it is obtained from the chamber of commerce, which serves other jobbers also." An Illinois grain dealer: "Find it more satisfactory to use the traffic bureau of the chamber of commerce." A building-material company in Iowa: "Get what information we need from the traffic department of the Greater Des Moines Committee."

A producer of foodstuffs, also in Iowa: "Burlington Shippers' Association handles our traffic matters." A Louisiana food-products

company: "We are members of the chamber of commerce; they maintain an efficient traffic department, which we utilize." A small iron and steel producer: "Traffic bureau of the chamber of commerce checks all rates and our freight and express bills periodically, filing for our account any overcharges or claims for damages, etc."

A New York furniture manufacturer: "We are a member of the traffic department of the chamber of commerce." A machinery manufacturer: "What few traffic matters we have are handled by the board of trade and handled very successfully." A paper mill: "We rely upon the traffic department of our city, which is maintained by the business interests." A textile industry: "Traffic is handled by traffic department of local chamber of commerce or through one of the companies situated in a larger city."

The following statements come from business establishments that depend upon trade-association traffic bureaus to handle traffic functions: A Kansas paving company: "We handle all our traffic affairs and freight bills through the traffic department of our contractors' association." A large New England paper-bag mill: "We belong to a paper and pulp traffic association, which does this work for us." An eastern pottery: "Use traffic manager of our potters' association for rate cases and checking freight bills." An Ohio starch company: "We engage a man connected with the farm bureau to keep in touch with all rate changes or proposals relating to our products and we pay him a nominal fee each month for such services."

An outside bureau may simply supplement a firm's work by handling the bigger problems. Thus, a Michigan paper mill advises:

> The paper industry in and around our city has formed a traffic bureau in the charge of competent people who handle all the larger questions pertaining to transportation for all the mills in this district.
>
> Our general traffic bureau is active at all times in securing the best routings and the most favorable rates to and from different destinations, and also handles all cases that might arise before the Interstate Commerce Commission. We have very few overcharge or loss and damage claims, but what we do have are handled by the traffic association. It handles freight matters for the mills here.
>
> Aside from that, we have a traffic man in our office who handles all the details of in and out bound shipments.

A large New York commission house states: "All of the problems which we can not handle ourselves are taken care of through a main traffic bureau, which is supported by members of this industry and handles practically every problem enumerated in your questionnaire." Likewise a lumber firm: "Our traffic matters are looked after by our office manager in conjunction with lumber traffic association." And a Wisconsin paper mill: "Technical matters handled by our paper and pulp traffic association; routine matters by our own office."

Outside public traffic bureaus are used to a growing extent. How profitable this may be is illustrated by the following quotation:

> We do not maintain a traffic department in our own office but rely upon a private traffic bureau in a near-by city for all rates, routing, and other traffic information we may need. This service costs us from $50 to $100 per month, depending upon the amount of work the bureau is called upon to perform for us. This monthly fee includes the handling of all overcharge claims, with the full amount of the overcharge accruing to us. During 1928 the overcharges collected by this bureau amounted to $3,633 on shipments we forwarded to our customers and where the freight was charged back to us.
>
> We are unable to estimate the amount of savings created on shipments where freight charges were prepaid by us because, acting upon instructions from our bureau, we insert upon the bill of lading the freight rate and the tariff authority for such rate applicable via the route we show upon the bill of lading. We have been employing this bureau for more than four years, and the carriers seldom question their quotations because time has developed the fact that the quotations submitted to us are on the correct basis.

The following statements from concerns engaged in the building-material, chemical, clothing, furniture, machinery, packing, grocery, lumber, paper, and textile industries indicate their views regarding the substitution of public traffic bureaus for traffic organizations of their own: "We pay a retainer to a firm of public traffic managers, who check all freight bills and advise on tariffs, routings, etc., as well as handling rate applications"; "outside firm employed on yearly basis, in conjunction with other companies in same line, to handle all rate and express traffic matters, including rate hearings, rate quotations, overcharge, and loss and damage claims, etc."; "all of our traffic problems are taken off our hands by a traffic agency; they advise us as to the best routes and follow up our shipments, checking our freight bills, and in general relieve us of all traffic matters"; "our paid freight bills are audited by one or two traffic auditing companies, which charge a reasonable fee for their services"; "a traffic manager for a group of mills supervises delivery of our finished product."

The place of the outside public service bureau, particularly as a factor in assisting the small industry, is discussed elsewhere in this report. (See p. 124.)

Professional traffic men are employed to assist in the handling of certain traffic functions. A Nebraska grain-milling and elevator company reports: "We employ a rate and traffic expert to conduct hearings and to protect us in rate adjustments before State and Interstate Commerce Commissions."

Primary dependence for traffic administration is placed by some on assistance furnished by the carriers. An Illinois steel-products company advises:

> The handling of traffic is a minor activity with our concern and is usually taken care of by one of our clerks in the billing and shipping department. Most of our traffic is handled in conjunction with the local freight office here inasmuch as we are situated on a main line of the only railroad which enters the city.

Another firm in the steel trade relies "upon local railroad freight agents for rates and shipping information" and has "freight bills audited by a traffic bureau upon a 50 per cent basis."

Outside assistance in the handling of traffic matters is also received from the traffic departments of suppliers and customers. A sugar manufacturer states: "Traffic information is secured from broker's traffic department." Another shipper explains: "The bulk of our incoming freight is on a prepaid or freight-allowed basis, and problems coming up on that particular part of our business are handled by the traffic departments of the various manufacturers with whom we do business."

SPECIFIC TRAFFIC SITUATION SURROUNDING THE BUSINESS

The third major group of reasons offered for not maintaining facilities for traffic administration are those having to do with the nature of the traffic to be handled. These pertain to the volume of traffic and the number of shipments, the size of the individual shipments, the character of the movement, the rate situation, and the kind of carrier used.

SMALL VOLUME OR NUMBER OF SHIPMENTS

"We do not ship over 200 carloads per year," says an Ohio company. "We ship approximately 1,200 cars per year; distributing territory is small, and all shipments are in car lots," a sand company reports. "We ship on an average of three cars per day, which can be handled by a head shipper with information secured from the traffic expert at our local chamber of commerce," a paper company advises.

These are typical of dozens of statements from shippers who consider their traffic volume or number of shipments too small to warrant the employment of a traffic administrator; and the same view is held by firms that receive or ship only a limited number of different articles. The point to be given particular attention in situations of this class is not so much the volume of traffic or number of shipments requiring handling as it is the amount of work needful to secure good, economical service and the importance of transportation services and transportation costs to the effective operation of the business.

SIZE OF SHIPMENTS

That a shipper's consignments are forwarded principally by mail, parcel post, or express or in carload lots is sometimes advanced as the reason for not having a traffic department. An Ohio magazine publisher reports:

> We maintain no transportation department, as we have no outgoing freight shipments of any kind. What little shipping we have is in the form of small packages, and these are sent by mail and usually by parcel post. Our incoming freight shipments are made up principally of white paper, which is purchased in car lots, but we have no transportation department to handle such matters.

A New York drug manufacturer states: "Ninety-eight per cent of our shipping is via parcel post, as weight seldom exceeds half a pound; 2 per cent is shipped via express." An Indianapolis concern having two plants reports: "We maintain no traffic department and our traffic problems are not very difficult, due to the fact that a very large percentage of our shipments are made via parcel post and express." A textile mill offers: "We ship only in carload lots." A furniture factory: "Our shipping is 90 per cent carload lots to New York City—same rate for all material." A Connecticut pulp-board company: "We ship one product only—almost entirely in carload lots; our incoming material is 95 per cent waste paper."

CHARACTER OF THE MOVEMENT

Some business men give length of haul as the reason for not needing traffic administration—that a local or short haul does not require management to the same extent as long hauls. In this they

are correct, for the longer hauls do necessitate greater attention and increased costs; but in proportion to distance local movements are by far the more expensive hauls. Ten shipments moving distances of 1 to 10 miles and totaling 50 miles require more attention than one haul of 100 miles.

Firms advise that their "shipments are made in a local area—radius 25 miles"; that they "handle a purely local business"; that their product is delivered by their own trucks to local factories, or that their business is "mostly local orders delivered by own trucks." Traffic management is not necessarily intended exclusively for inbound business, nor exclusively for outbound deliveries; neither does it pertain simply to long-haul traffic. When firms report: "The material which we purchase is bought locally or in near-by cities and is hauled to our plant by our own trucks," they overlook the fact that scientific management of these local hauls might develop many opportunities for savings.

There are concerns that believe their goods do not require transportation managerial attention because (1) they originate at only a few points, (2) they are sent to but few points, (3) the firm has but few customers, or (4) the territory in which goods are purchased or the area in which merchandise is marketed is limited in extent. Such reasons, considered alone, are not always sufficient; there should be supporting reasons of greater weight to justify a concern in not administering its traffic at all. A manufacturer of chemical products states: "We ship during a year approximately 100 cars of finished product, and 25 per cent of this is taken by a nearby customer. Most of the balance is used by 8 or 10 customers, who take it in carload lots, sold f. o. b. our works." A large manufacturer of dyes advises: "Our shipping is mainly to 27 points, and these are continually checked. Practically all by express." And a fabricator of steel products reports:

> We have no traffic department, nor any men or group of men assigned to the handling of traffic, as there is no traffic to speak of. It is true we receive a few carloads of steel and less-than-carload shipments during a month. Our outgoing products are delivered by our own trucks to a territory within a radius of about 75 miles.

A foundry in central Illinois states: "Our business consists of carload shipments to a very few customers and necessitates very little traffic work," and a manufacturer of farm equipment writes:

> We do not have a regular traffic department, but we are members of a national association of equipment manufacturers which has a traffic department. Our business is confined to certain jobbing points, not over 100 in number. All of our shipments are made to these points, and we keep a card index system on which we show the rates, routing, etc. These cards are checked up quarterly by our traffic bureau. On account of the limited number of points that we make shipments to, and the way we check rates, routing, etc., it is not necessary to have a traffic department. We might add that 97 per cent of our business is carload.

RATE SITUATION

Another reason offered for not maintaining a traffic department because of the particular traffic situation surrounding the business, concerns the rates applying on the firm's freight movements. The cost of transportation as measured by the amounts paid carriers

represents only a portion of the total. Even if carrier rates were so well established that no change could be made or was even desired, there still would remain other costs requiring study and service that merited attention.

On the subject of "fixed" or established rates one wholesaler reports:

> In our business we handle probably 10 or 15 fruit items, which are received in carload lots only, and our State association and national association both maintain traffic departments. Practically all of our shipments are moved on what we call common-point rates, and some of the established rates have been in effect for a number of years. Whenever there is a change suggested, we are notified by our trade-association traffic department.

Among the other kinds of rates mentioned in questionnaire replies are commodity rates, specific or mileage rates, and through rates; concerning which a southern rice shipper points out: "Product generally governed by specific or mileage rates, on which close cooperation with carriers is practiced," and a large lumber company: "Traffic simplified; handling only one commodity from one point of origin on published through rates to practically all points."

Some firms combine these two rate situations; that is, their rates are both "established" and specific commodity rates. Thus one shipper advises:

> The differential relationship in the coal rates as between the several competing fields is pretty well established and rates are properly published in special commodity tariffs. Therefore, the traffic work in the coal business is not so involved nor so wide in scope as in many other lines.

CARRIER AGENCIES USED

Many executives offer the kind of carrier used as their reason for not having traffic management. Firms engaged in practically every industry and confining their one-way movement to trucks report "all our brick is delivered locally by trucks," "all deliveries local—by trucking contractor," "bulk of our outbound business is for local hauls by truck," and similar situations. Business establishments using trucks for both inbound and outbound movement report "business confined to a small area close to our plant; no car route or car shipments," and "we do no shipping outside a 100-mile radius and have no outgoing shipments in cars; about 75 per cent of our shipping is by motor truck"; and a textile mill states:

> Our business is done in a high-priced commodity and the transportation is not a heavy item of cost. Our raw material, worsted yarn, is usually purchased from mills in our vicinity, which deliver in their own trucks. Our manufactured article is sold f. o. b. mill, except for the New York market, for which goods are trucked to Providence, then by boat to New York.

Pipe-line deliveries also are named as the reason for not maintaining a traffic department. As one Illinois company explains: "Being a public utility, the products which we manufacture, electricity, gas, and steam heat, are delivered directly to our customers over wires or through pipes"; and a public utility located in Pennsylvania likewise states:

> Our product, natural gas, is transported entirely by pipe-line systems. We are not the originators of freight, and our traffic consists only of incoming supplies. For this reason we do not have the traffic organization we would have were we manufacturers of a product requiring shipment by the usual methods.

GENERAL ADMINISTRATIVE POLICY OF THE BUSINESS

The fourth group of reasons why industries do not administer traffic deals (*a*) with the basis on which their purchase and sales contracts are consummated and (*b*) with the cost of traffic administration.

BASIS OF PURCHASE AND SALES CONTRACTS

Many persons believe that the purchase of goods f. o. b. their plant (with transportation bills paid by the supplier) and an f. o. b. plant basis of selling (with transportation bills paid by the customer) make traffic management unnecessary on their part. Most careful study should precede the adoption of this conclusion, for there is grave danger that firms following this policy may doubly penalize themselves.

Such buying and selling policies usually are based upon the idea that they are more economical and cut down overhead; but the fact that the product itself bears the total costs must not be lost sight of. The amount of business done in any line depends upon total cost to the consumer, including all transportation items. Consequently, all shippers have an interest in what the transportation costs amount to, regardless of who pays the carrier.

In certain channels of trade it is the accepted custom for the shipper or the receiver to take care of transportation costs. While this practice is recognized as long established in particular industries, the policy that is questioned is (1) believing that such a basis for marketing relieves a firm from responsibility over such traffic and (2) deliberately setting up an f. o. b. plant basis where one is free to make a choice. That not all business men approve of this purchasing and selling policy is seen from the comment of a San Francisco cement manufacturer:

> All transportation should be for the account of the company. That is, when possible, purchases should be made f. o. b. originating point, sales should be made f. o. b. destination point, and the detail of authorizing all transportation should be handled exclusively by the traffic department.

COST OF TRAFFIC ADMINISTRATION THOUGHT EXCESSIVE

The final reason to be discussed also is related to the administrative policy of a business. While not always stated in so many words that traffic management "costs too much," nevertheless this is quite frequently the basis for the reasons that are given for not having traffic administration. Probably all business concerns would have traffic administration if it could be had at no expense. Therefore, it is important to discuss this reason and to point out that, contrary to the general impression, instead of traffic management resulting in an expense—a "dead loss"—it is more likely to show a profit. This question of the cost of traffic administration is so vital that a later section of this report (Chapter VIII) is given over to its discussion. It will be helpful, as a prelude, to note the views offered by various industries on this point.

A large furniture factory recognizes the need for a traffic department: "Have real need for one; cost is only reason we haven't"; whereas an iron and steel company spending $250,000 annually for

transportation is doubtful: "Possible saving does not seem to warrant expense"; and a manufacturer of building materials distributed by over 100 branches also fears the cost element: "We do not think business large enough to justify the cost."

It is recognized that an elaborate organization or even a capable full-time traffic man represents, for the typical small business, an expense not justified by the volume of traffic handled or the savings possible. When a small coal producer says "not enough business for the cost," a little foundry advises "too expensive for our small organization, as our shipments are not heavy enough to maintain our own department," or a hosiery mill states "expenses must be kept down; our limited number of shipments will not warrant this expense," this reason is unquestionably well founded. But traffic administration can be secured for the small business without the necessity for setting up its own department.

Few firms without traffic administration realize that adequate management is not necessarily expensive. If there is but little traffic requiring attention, its management will require but little time and consequently can be obtained for but little cost; yet, be it ever so little, such traffic as does exist always merits careful handling. In this connection the secretary of a lumber company located in Birmingham comments:

> The size of any concern requiring a separate and distinct organization must be judged by those responsible for the operation of the company; but since nearly all chambers of commerce maintain traffic departments, there is no reason for any concern, no matter how small, not availing itself of the services offered.

This brings up various questions, among them the amount that a small business need spend in order to secure adequate traffic administration. The average business man, whether connected with a large or with a small business, finds it most difficult to determine the proper amount to budget for traffic management. Some measuring device or formula is needed to help him determine how this item should be apportioned in his budget.

Due to the lower cost, use of outside traffic bureaus seems to be the way out for the small concern. This topic is discussed at some length in connection with the relation of the size of a business to traffic administration in Chapter IX.

CHAPTER VIII

COST OF INDUSTRIAL TRAFFIC ADMINISTRATION

One of the most important expenditures necessary in the conduct of business is made for transportation service. Nevertheless, it is the one major expense regarding which least is known. It also is the one that many businesses make no attempt to administer, believing it to be a "necessary" or "dead" expense which must be paid without question, which can not be reduced, and over which they have no control.

One explanation of this is undoubtedly the too-narrow conception that is prevalent regarding what constitutes transportation costs. Instead of being merely the sums paid to carriers for hauling services, these expenditures are in reality much more inclusive.

RELATION OF TRANSPORTATION COSTS TO TOTAL EXPENSES

Business has not always given proper weight to transportation costs, largely because of current methods of accounting. Regardless of the merits of the accounting policy of including transportation as part of the cost of goods purchased, produced, or marketed, the significant fact remains that such procedure tends to obliterate transportation as a major cost factor. When the cost of purchased raw materials is being determined, it is the common practice to add inbound transportation to the cost of the goods; when the production or operating cost is desired, the plant-transportation, interplant-transportation, materials-handling, and storage costs are added to the actual processing cost; and when the cost of distribution or marketing is being figured, expenditures for outbound transportation are included with actual selling costs. Instead of maintaining a separate account for all transportation items, as is done for advertising, such expenditures are merged with these other accounts and their identity and proper significance immediately lost. The outlay for transportation often represents so large a portion of the total cost of doing business that constant attention should be given the individual transportation items that comprise the total thus expended, with a view to controlling the amount.

The policy of a concern might be to keep its accounts in such a way that the cost of transportation could be predetermined and budgeted; that changes from the amount estimated as necessary for transportation would then require an explanation; that such causes for fluctuation would be analyzed, and if not found justified steps would be taken to protect the business against them. Such a policy would at least keep transportation costs out in the open, and the exercising of executive control over them would be reasonably possible.

3864°—30——7

By way of illustrating the relative importance of transportation to the total cost of doing business, the following figures may be used:

TABLE 3.—TYPICAL COST SHEET

Accounts charged	Costs						Profit	Selling price
	Purchasing	Producing	Marketing	Overhead	Transportation	Total		
Supplies and raw materials	$800				$200	$1,000		
Manufacturing and operating		$1,000			500	1,500		
Advertising and selling			$700		250	950		
Capital, insurance, and administration				$350	50	400		
Profit and loss							$500	
Total	800	1,000	700	350	1,000	3,850	500	$4,350
Per cent of selling price	18.5	23.0	16.0	8.0	23.0		11.5	100.0
Per cent of cost	21.0	26.0	18.0	9.0	26.0	100.0		

Although transportation as represented in the above illustration amounts to 23 per cent of the selling price and 26 per cent of the cost of doing business, when transportation expenditures are included in other accounts their importance is almost entirely lost sight of.

LIMITATIONS ON THE INTERPRETATION OF THE DATA

In considering the cost figures reported in connection with this survey, a word of caution is necessary. The character of this material makes its analysis difficult and any deductions uncertain for the following reasons:

The incompleteness of some of the data furnished, due to—

(*a*) The accounting policy of including transportation expenditures as a part of purchasing, production, and marketing costs; or

(*b*) The accounting policy of not keeping accounts so as to determine the separate amounts paid for each of the different transportation items; or

(*c*) The policy of not considering expenditures for transportation possible of control.

The uncomparability of the data, due to an improper or nonuniform interpretation placed on the terms used in the questionnaires.

The short period (one year) covered.

For example, apparently few concerns keep their accounts so as to indicate the individual costs of the nine principal transportation items shown below. Due to this, in a great number of cases the information was either omitted entirely or in part, or was furnished in lump sums.

Then, too, some of those who filled out the questionnaire either misunderstood or gave insufficient attention to the significance of the item "traffic and transportation administration expense." For instance, some of the replies included such items as labor cost in loading and unloading cars and labor for packing and marking as "traffic and transportation administrative costs" while excluding the salary of the traffic manager.

Many firms purchase raw material f. o. b. their places of business and/or sell f. o. b. their plants; in these cases the cost of transportation frequently was omitted. Other firms included in their figures the cost of transportation, both inbound and outbound, regardless of who paid the bills.

It can readily be appreciated that many of the figures furnished by the industries, covering only a single year, do not pertain to an illustrative year nor to a typical or an average period. The expenses of a business for transportation, as for all other items, vary from year to year. Unusually large outlays for transportation may represent a growing business, a change in the nature of articles handled, the size of orders taken, inefficient management, or a year in which a building program or period of expansion is under way.

All these limitations should be carried in mind when interpreting these figures on costs.

TOTAL EXPENDITURES FOR TRANSPORTATION

As used herein, the "total expenditures for transportation" include the actual amounts represented by the following nine items:

1. Expenditures to carriers for hauling freight, express, or parcel post, and for related special services such as refrigeration and lighterage;
2. Expenditures for the production or performance of transportation by facilities leased and owned and by facilities operated by the company, such as motor trucks, private rail cars, industrial railroads, pipe lines, marine equipment, and private wires;
3. Expenditures for storage and warehousing space and service within the plant area and on the outside, and for facilities both owned and rented;
4. Expenditures for passenger transportation and traveling, in company and outside facilities;
5. Expenditures for communication via cable, telegraph, telephone, and messenger facilities, leased and owned, and for services purchased from carriers operating such facilities;
6. Expenditures for preparing goods for safe and economical transportation, including packing, packing material, containers, loading, stowing, billing, and other shipping-room costs;
7. Expenditures for receiving-room operation, including unloading, unpacking, distributing, record keeping, and waste disposal;
8. Expenditures for plant transportation, interplant transportation, and materials handling; and
9. Expenditures for traffic and transportation administration, embracing the management and supervision of all the above services and facilities and covering traffic activities of a technical and clerical nature not included elsewhere.

It is difficult to compare the total expenditures for transportation of one firm with those of another because of differences in the nature of their businesses and in the specific circumstances surrounding the operation of each. A large silk mill, size based upon total expenses for all matters, and a large dairy, spending an equal amount, would spend widely different sums for transportation due to the length of hauls required by their products and the value and nature of the commodities handled. Likewise, two silk mills of equal size, or two dairies, would have different transportation requirements. Therefore, firms compared with each other, even when considered of equal size, may be expected to differ as to transportation expenditures, and hence as to the amount of their traffic administrative needs and costs. Total annual transportation expenditures, covering all of the nine cost items, as reported on questionnaires received, ranged from $5,064 to $9,959,025.

The importance of "total expenditures for transportation services" and its relation to "total expenditures for conducting a business" can be seen in Table 4. In 80 large concerns total expenditures for transportation amounted to 9.6 per cent of all expenses; in 88 medium-sized concerns, to 25 per cent; and in 45 small concerns, to 20 per cent. The percentages are smaller than they would have been had all the firms included in their transportation figures all nine of the cost items listed above. In a good many cases it was stated that this was not done because of inability to determine such costs from their books, the various transportation cost items not being kept separately; and also because of a question as to the meaning of the cost terms themselves.

Tables 5, 6, and 7 present additional information on this subject.

TABLE 4.—TOTAL TRANSPORTATION EXPENSES COMPARED WITH TOTAL EXPENSES

Total expenses	Small concerns [1]		Medium-sized concerns [1]		Large concerns [1]	
	Number	Average total transportation expenses	Number	Average total transportation expenses	Number	Average total transportation expenses
Over $20,000,000					8	$4,469,734
$15,000,000 to $20,000,000					3	2,975,938
$10,000,000 to $15,000,000					3	2,138,993
$5,000,000 to $10,000,000			5	$2,663,634	21	1,371,339
$1,000,000 to $5,000,000	5	$200,000	31	382,870	41	501,252
$500,000 to $1,000,000	5	241,600	20	136,759	3	139,786
$250,000 to $500,000	7	94,000	25	64,885	1	67,213
$100,000 to $250,000	21	56,290	7	59,042		
$50,000 to $100,000	4	28,750				
$5,000 to $50,000	3	5,400				
Total or average	45	92,873	88	340,429	80	1,036,734
	Small concerns		Medium-sized concerns		Large concerns	
Range:						
Total expenses	$22,776–$3,858,288		$88,000–$9,126,073		$301,675–$57,582,438	
Total transportation expenses	5,064– 628,576		13,556– 6,486,500		62,300– 9,959,025	
Ratio, total transportation expenses to total expenses—per cent	20		25		9.6	

[1] The basis on which firms are classified in this report as "small," "medium," and "large" is explained on p. 120.

TABLE 5.—PERCENTAGE RELATION OF TOTAL TRANSPORTATION EXPENSES TO TOTAL EXPENSES IN LARGE CONCERNS

Nature of business	Number of concerns	Percentage relation	Remarks
Fruits and vegetables (wholesaling)	1	92	Plant-transportation and materials-handling costs not shown.
Potash (manufacturing)	1	61	
Packing-house products, meats (manufacturing).	1	57	
Stone quarry (producing)	1	51	
Oil (manufacturing)	1	45	Traffic-administration costs and plant-transportation and materials-handling costs not shown. Located in Illinois; near markets.
Creamery (manufacturing)	1	42	Traffic-administration costs and plant-transportation and materials-handling costs not shown.
Lumber (manufacturing)	3	38	Packing and container costs and plant-transportation and materials-handling costs not shown for 2 concerns.
Salt (producing and manufacturing)	2	34	Plant-transportation and materials-handling costs not shown for 1 concern.
Electric elevator equipment (manufacturing).	4	34	Traffic-administration costs not shown for 1 concern.
Coke (manufacturing)	1	34	
Fish (producing and manufacturing)	1	32	Packing and container costs and plant-transportation and materials-handling costs not shown.
Corn products (manufacturing)	1	24	
Oil (producing and manufacturing)	1	17	Located in Texas; in proximity to raw materials.
Pulp, paper, stationery (producing and manufacturing).	9	16	Packing and container costs not shown for 4 concerns; plant-transportation and materials-handling costs not shown for 7 concerns.
Chemicals (manufacturing)	1	16	Traffic-administration costs not shown.
Confections (manufacturing)	2	14	Plant-transportation and materials-handling costs not shown for 1 concern.
Canners and preservers (manufacturing).	1	13	Plant-transportation and materials-handling costs not shown.
Furniture (manufacturing)	1	13	
Cottonseed products (manufacturing).	1	12	Transporting costs and plant-transportation and materials-handling costs not shown.
Drugs (manufacturing)	1	12	Packing and container costs and plant-transportation and materials-handling costs not shown.
Machinery (manufacturing)	10	11	Packing and container costs not shown for 2 concerns; plant-transportation and materials-handling costs not shown for 4 concerns.
Shoes (manufacturing)	1	10	Plant-transportation and materials-handling costs not shown.
Dyes (manufacturing)	1	10	Traffic-administration costs and plant-transportation and materials-handling costs not shown.
Public utility; gas, light and power (producing).	1	10	
Oil (producing and manufacturing)	1	10	Located in Oklahoma; in oil fields.
Groceries (wholesaling)	1	10	Plant-transportation and materials-handling costs not shown.
Tea (retailing)	1	9	Packing and container costs and plant-transportation and materials-handling costs not shown.
Lamps (manufacturing)	1	9	Plant-transportation and materials-handling costs not shown.
Metals, iron and steel, hardware (manufacturing).	23	9	Traffic-administration costs not shown for 2 concerns; packing and container costs not shown for 3 concerns; plant-transportation and materials-handling costs not shown for 9 concerns.
Electrical appliances (manufacturing).	5	5	Packing and container costs not shown for 1 concern; plant-transportation and materials-handling costs not shown for 2 concerns.
Paint and varnish (manufacturing)	1	5	Located in Brooklyn; near raw materials and markets.
Department store (retailing)	1	5	Packing and container costs and plant-transportation and materials-handling costs not shown.
Textiles (manufacturing)	4	4	
Department store (retailing)	1	2	Traffic-administration costs and plant-transportation and materials-handling costs not shown.

TABLE 6.—PERCENTAGE RELATION OF TOTAL TRANSPORTATION EXPENSES TO TOTAL EXPENSES IN MEDIUM-SIZED CONCERNS

Nature of business	Number of concerns	Percentage relation	Remarks
Stone quarrying and crushing (producing).	1	70	Traffic-administration costs, packing and container costs, and plant-transportation and materials handling costs not shown.
Mixed-feeds (manufacturing)	1	61	Plant-transportation and materials-handling costs not shown.
Zinc (producing and smelting)	1	60	Packing and container costs and plant-transportation and materials-handling costs not shown.
Cereals (manufacturing)	1	52	
Grain (manufacturing)	1	50	Plant-transportation and materials-handling costs not shown.
Glassware (manufacturing)	1	48	
Crushed stone (producing and manufacturing).	1	47	
Lumber (retailing)	1	45	Packing and container costs and plant-transportation and materials-handling costs not shown.
Brick (manufacturing)	1	40	Traffic-administration costs not shown.
Lumber (manufacturing)	2	39	Packing and container costs and plant-transportation and materials-handling costs not shown for 2 concerns.
Coal and building materials (distributing).	1	31	Packing and container costs and plant-transportation and materials-handling costs not shown.
Cereals (manufacturing)	1	30	Plant-transportation and materials-handling costs not shown.
Coke (manufacturing)	1	29	
Clay products (manufacturing)	1	26	Packing and container costs and plant-transportation and materials-handling costs not shown.
Foodstuffs; groceries (wholesaling)	4	26	Packing and container costs not shown for 1 concern; plant-transportation and materials-handling costs not shown for 3 concerns.
Dry goods (wholesaling)	1	25	
Alcohol and feed (manufacturing)	1	24	
Sugar (manufacturing)	1	23	
Dry goods, rugs, furnishings (wholesaling).	1	22	Plant-transportation and materials-handling costs not shown.
Foodstuffs, groceries (manufacturing).	7	21	Traffic-administration costs not shown for 1 concern; plant-transportation and materials-handling costs not shown for 3 concerns.
Cement (manufacturing)	1	21	Plant-transportation and materials-handling costs not shown.
Chemicals and drugs (manufacturing).	8	19	Packing and container costs not shown for 2 concerns; plant-transportation and materials-handling costs not shown for 6 concerns.
Corn (manufacturing)	1	17	Plant-transportation and materials-handling costs not shown.
Metals, iron and steel, hardware (manufacturing).	17	12	Traffic-administration costs not shown for 7 concerns; packing and container costs not shown for 1 concern; plant-transportation and materials-handling costs not shown for 7 concerns.
Pulp, paper, stationery (producing and manufacturing).	7	12	Traffic-administration costs not shown for 3 concerns; packing and container costs not shown for 1 concern; plant-transportation and materials-handling costs not shown for 6 concerns.
Drop forgings and concrete mixers (manufacturing).	2	11	Plant-transportation and materials-handling costs not shown for 1 concern.
Gas (manufacturing)	1	10	
Furniture (manufacturing)	3	9	Traffic-administration costs not shown for 2 concerns; packing and container costs not shown for 1 concern; plant-transportation and materials-handling costs not shown for 2 concerns.
Hardware (wholesaling)	1	8	Plant-transportation and materials-handling costs not shown.
Art stone, tile, builders' materials	1	7	Plant-transportation and materials-handling costs not shown.
Furniture (retailing)	1	7	Plant-transportation and materials-handling costs not shown.
Clothing and dry goods (manufacturing).	3	6	Plant-transportation and materials handling costs not shown for 3 concerns.
Tires and tubes (manufacturing)	2	4	
Textiles (manufacturing)	8	4	Traffic-administration costs not shown for 2 concerns; packing and container costs not shown for 1 concern; plant-transportation and materials-handling costs not shown for 7 concerns.

TABLE 7.—PERCENTAGE RELATION OF TOTAL TRANSPORTATION EXPENSES TO TOTAL EXPENSES IN SMALL CONCERNS

Nature of business	Number of concerns	Percentage relation	Remarks
Cottonseed oil (manufacturing)	1	62	Plant-transportation and materials-handling costs not shown.
Salt (manufacturing)	1	56	Traffic-administration costs not shown.
Foodstuffs, groceries (wholesaling)	5	42	Packing and container costs not shown for 1 concern; plant-transportation and materials-handling costs not shown for 5 concerns.
Creamery, ice cream (manufacturing).	1	31	Traffic-administration costs and plant-transportation and materials-handling costs not shown.
Seeds (wholesaling)	2	27	Traffic-administration costs and plant-transportation and materials-handling costs not shown for 1 concern.
Building materials (manufacturing)	6	26	Traffic-administration costs not shown for 4 concerns; plant-transportation and materials-handling costs not shown for 5 concerns.
Pulp, paper, stationery (manufacturing).	3	25	Traffic-administration costs not shown for 1 concern; plant-transportation and materials-handling costs not shown for 2 concerns.
Grain, flour, and feed (manufacturing).	11	24	Plant-transportation and materials-handling costs not shown for 9 concerns.
Hardware (wholesaling)	1	20	
Chemicals and drugs (manufacturing).	3	17	Traffic-administration costs and plant-transportation and materials-handling costs not shown for 1 concern.
Plows and cultivators (manufacturing).	1	16	
Iron lamps (manufacturing)	1	10	Traffic-administration costs not shown.
Furniture (retailing)	1	7	Plant-transportation and materials-handling costs not shown.
Table oilcloth (wholesaling)	1	7	Traffic-administration costs not shown.
Logs, lumber, and furniture (producing and manufacturing).	3	7	Plant-transportation and materials-handling costs not shown.
Crude oil (manufacturing)	1	6	Plant-transportation and materials-handling costs not shown. Located in Pennsylvania; near raw materials and markets.
Paper (wholesaling)	1	6	Packing and container costs and plant-transportation and materials-handling costs not shown.
Trunks and bags (manufacturing)	1	6	
Rubber heels (manufacturing)	1	5	Traffic-administration costs not shown.
Stoves (manufacturing)	1	5	Plant-transportation and materials-handling costs not shown.

TRANSPORTING COSTS

Costs for transporting only include sums paid for local, intrastate, interstate, and foreign hauling and allied services performed by rail, water, truck, airplane, and pipe-line facilities, for freight, express, and mail shipments, and for passenger services. Such services also consist of those performed (1) by facilities owned and operated by outside common or contract carriers, and (2) by those owned and operated privately by a concern.

As reported by business establishments in connection with this survey, "transporting costs" also included expenditures for communication and for storing; in other words, items 1, 2, 3, 4, and 5 out of the nine listed under "total expenditures for transportation" on page 91. The questionnaires from business concerns reported annual "transporting costs" ranging all the way from $1,758 to $9,774,031. (Table 8.)

The relation of "transporting costs" to total transportation expenditures in 55 large concerns ranged from 18 per cent for an electrical-appliance concern in Massachusetts to 99 per cent for a public utility, and averaged 74 per cent. For 123 large concerns

the average was 81 per cent. Additional data showing the relation of total transporting costs to total expenses and of total transporting costs to total transportation expenses are set forth in Tables 8 and 9.

TABLE 8.—TRANSPORTING COSTS COMPARED WITH TOTAL EXPENSES

Total expenses	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average transporting costs	Number	Average transporting costs	Number	Average transporting costs
Over $20,000,000					11	$3,176,782
$15,000,000 to $20,000,000					3	2,324,718
$10,000,000 to $15,000,000					3	1,955,742
$5,000,000 to $10,000,000			5	$2,357,841	21	1,037,412
$1,000,000 to $5,000,000	4	$55,299	33	258,146	48	375,278
$500,000 to $1,000,000	6	155,605	24	95,231	4	97,104
$250,000 to $500,000	7	59,408	27	49,049	2	109,042
$100,000 to $250,000	22	39,758	5	54,356		
$50,000 to $100,000	4	23,199				
$5,000 to $50,000	3	3,809				
Total or average	46	55,426	94	257,337	92	959,122

	Small concerns	Medium-sized concerns	Large concerns
Range:			
Total expenses	$22,766–$3,858,288	$88,000–$9,126,073	$301,675–$57,582,438
Transporting costs	1,758– 600,000	1,327– 5,400,000	18,035– 9,774,031
Ratio, transporting costs to total expenses—per cent	12	19	10

TABLE 9.—TRANSPORTING COSTS COMPARED WITH TOTAL TRANSPORTATION EXPENSES

Total transportation expenses	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average transporting costs	Number	Average transporting costs	Number	Average transporting costs
Over $5,000,000					8	$5,300,217
$1,000,000 to $5,000,000	2	$2,425,350	12	$1,637,665	31	1,710,759
$500,000 to $1,000,000	2	553,852	12	483,724	28	602,094
$250,000 to $500,000	5	297,839	12	228,166	28	228,638
$100,000 to $250,000	13	97,654	26	117,141	28	90,941
$50,000 to $100,000	12	44,647	24	53,268		
$5,000 to $50,000	25	17,508	30	15,665		
Total or average	59	164,247	116	284,385	123	172,700

	Small concerns	Medium-sized concerns	Large concerns
Range:			
Total transportation expenses	$5,064–$3,003,000	$11,436–$6,486,500	$100,000–$9,959,025
Transporting costs	1,758– 3,000,000	1,327– 5,400,000	18,035– 9,774,031

PACKING AND SHIPPING-CONTAINER COSTS

The expenditures made for labor and materials required to prepare goods for safe, convenient, and economical transportation are included under the heading, "Packing and shipping-container costs." This item in a broad sense embraces not only the cost of containers and other packing material but also the labor, facility, and overhead costs incident to their making, storing, packing, marking, weighing, checking, handling out, loading, stowing, and bracing on cars, vessels, or trucks. It also calls for the labor, materials, and facilities used in preparing cars, vessel holds, or trucks to receive such goods, and in their inspecting, weighing, cleaning, lining, precooling, heating, ventilating, icing, and sealing. This item as reported by some companies further includes the labor and facility costs incident to the receipt of goods, weighing, inspection of loads, unloading, handling in, opening of packages, checking, and distribution and the disposal of used containers and packing materials. In other words it relates to transportation cost items Nos. 6 and 7 in the nine listed on page 91.

In many instances "packing costs" exceeded "transporting costs." They ranged all the way from practically nothing at all for an operator of a stone quarry to $5,675,822 for a manufacturer of sanitary ware. (Tables 10 and 11.)

TABLE 10.—PACKING AND CONTAINER COSTS COMPARED WITH TOTAL EXPENSES

Total expenses	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average packing and container costs	Number	Average packing and container costs	Number	Average packing and container costs
Over $20,000,000					9	$1,208,929
$15,000,000 to $20,000,000					2	309,695
$10,000,000 to $15,000,000					3	82,851
$5,000,000 to $10,000,000			4	$295,963	15	265,348
$1,000,000 to $5,000,000	4	$62,952	26	123,709	45	128,218
$500,000 to $1,000,000	7	52,888	19	40,856	4	35,470
$250,000 to $500,000	8	43,945	21	11,686	1	44,139
$100,000 to $250,000	20	13,107	4	27,185		
$50,000 to $100,000	4	3,685				
$5,000 to $50,000	3	660				
Total or average	46	27,227	74	74,739	79	277,999

	Small concerns	Medium-sized concerns	Large concerns
Range:			
Total expenses	$22,776–$3,858,288	$88,000–$7,623,051	$263,814–$127,469,332
Packing and container costs	50– 150,000	200– 1,080,000	150– 5,675,822

TABLE 11.—PACKING AND CONTAINER COSTS COMPARED WITH TOTAL TRANSPORTATION EXPENSES

Total transportation expenses	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average packing and container costs	Number	Average packing and container costs	Number	Average packing and container costs
Over $5,000,000					6	$636,332
$1,000,000 to $5,000,000			13	$234,264	20	333,543
$500,000 to $1,000,000	2	$59,435	7	262,942	15	111,351
$250,000 to $500,000	4	77,109	10	83,661	26	84,735
$100,000 to $250,000	11	53,893	20	36,641	24	34,536
$50,000 to $100,000	10	24,901	17	16,913		
$5,000 to $50,000	15	3,138	28	7,153		
Total or average	42	31,338	95	73,087	91	210,942

Range:	Small concerns	Medium-sized concerns	Large concerns
Total transportation expenses	$5,064–$3,003,000	$11,436–$6,486,500	$100,000–$9,959,025
Packing and container costs	50– 150,000	200– 1,080,000	150– 5,675,822

The relation of packing and container costs to total expenses in 79 concerns was found to average 3 per cent; its relation to total transportation expenses for 96 plants averaged 17 per cent. For illustrative industries the relation of packing and container costs to transportation costs varied as indicated below:

	Per cent
Sanitary ware (manufacturing)	108
Creamery and dairy products (producing and manufacturing)	64
Automotive (8 manufacturing plants)	53
Corn products (manufacturing)	32
Milk (condensery)	30
Beet sugar (mill)	28
Rubber (4 manufacturing plants)	11
Limestone (cut) (producing and manufacturing)	11
Cement (manufacturing)	10

PLANT-TRANSPORTATION AND MATERIALS-HANDLING COSTS

The costs coming under the heading "Plant transportation and materials handling" relate to item 8 of the list of transportation costs (p. 91) and embrace the labor and vehicular movements costs for handling and transporting raw, partly finished, and finished materials and products within and between adjacently owned and operated plants. Such costs are sometimes included with production, factory, or storage expenditures, but they pertain to transportation even though the movements are short and local in character, within a yard area or building, and by such facilities as cranes, derricks,

conveyors; stackers, pilers, and elevators; electric, motor, and hand trucks; telphers; pneumatic tubes and plant pipe lines; narrow and standard gauge rail tracks, cars, and locomotives; steam shovels; horses and wagons; skids; removable bodies, trailers, semi-trailers, and tractors; and accommodation appliances, such as bicycles and basket conveyors.

Expenditures reported for plant transportation and materials handling, as set forth in Tables 12 and 13, ranged from $200 to $1,168,674, and in many cases exceeded packing and even "outside" transporting costs. The average for 65 large concerns was $104,616. The average relationship of materials-handling costs to transporting costs was 11 per cent; and its relationship to total transportation expenditures for 60 large concerns reporting ranged from 0.0013 per cent in a textile mill to 43 per cent for a manufacturer of gasoline pumps, averaging 7 per cent.

TABLE 12.—PLANT-TRANSPORTATION AND MATERIALS-HANDLING COSTS COMPARED WITH TOTAL TRANSPORTATION EXPENSES

Total transportation expenses	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average plant-transportation costs [1]	Number	Average plant-transportation costs [1]	Number	Average plant-transportation costs [1]
Over $5,000,000					5	$392,183
$1,000,000 to $5,000,000			3	$218,706	15	142,851
$500,000 to $1,000,000			4	59,530	14	75,791
$250,000 to $500,000			5	90,279	12	67,261
$100,000 to $250,000	5	$4,438	6	10,307	14	32,603
$50,000 to $100,000	5	5,211	8	8,947		
$5,000 to $50,000	9	3,579	10	6,550		
Total or average	19	4,234	36	42,904	60	107,139

Range:	Small concerns	Medium-sized concerns	Large concerns
Total transportation expenses	$6,200–$150,530	$11,436–$2,809,460	$100,000–$9,959,025
Plant-transportation and materials-handling costs	200– 12,512	350– 2,500,000	500– 1,168,674

[1] Including materials-handling costs.

TABLE 13.—PLANT-TRANSPORTATION AND MATERIALS-HANDLING COSTS COMPARED WITH TRANSPORTING COSTS

Transporting costs	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average plant-transportation costs [1]	Number	Average plant-transportation costs [1]	Number	Average plant-transportation costs [1]
Over $5,000,000					3	$232,316
$1,000,000 to $5,000,000			3	$180,505	15	230,128
$500,000 to $1,000,000					15	124,131
$250,000 to $500,000			6	502,361	10	62,683
$100,000 to $250,000	2	$2,071	7	41,499	15	70,920
$50,000 to $100,000	4	6,694	6	39,618	7	24,970
$5,000 to $50,000	13	3,811	13	8,920		
Total or average	19	4,234	35	119,995	65	121,173

	Small concerns	Medium-sized concerns	Large concerns
Range:			
Transporting costs	$5,000–$115,004	$7,256–$2,132,056	$18,035–$9,774,031
Plant-transportation and materials-handling costs	200– 12,512	350– 2,500,000	500– 1,168,674

[1] Including materials-handling costs.

COST OF TRAFFIC AND TRANSPORTATION ADMINISTRATION

The costs of traffic and transportation administration, the ninth and final one listed on page 91, include all office overhead and salaries incident to the management and operation of the traffic department offices and administering policies covering the packing room, shipping room, receiving room, warehouses, communicating system, transportation facilities, plant transportation, and materials handling. Costs for administration would include the salaries of those engaged in the traffic-department offices for executive, technical, and clerical work and of the superintendents of packing, shipping, and receiving rooms, warehouses, transportation facilities, and materials handling. The administrative cost of some of the service functions would be included.

This item would not include (1) the cost of clerical work necessary to the operation of the business, such as billing; nor (2) physical handling and labor costs for such matters as packing, crating, loading, and unloading; nor (3) the cost of materials for such use as packing and stowing; nor (4) the cost of transporting, either by common or contract carriers or by facilities leased, owned, operated, and maintained for switching, trucking, lightering, or line-haul movements. In other words, the cost of performing traffic functions requiring manual labor, physical handling, or of an actual transportation nature are not included in "traffic and transportation administrative costs."

The amounts spent for traffic administration by firms participating in this survey ranged from $225 to $1,106,013 and averaged $27,886 for 145 large concerns. The relation of traffic administration costs to total expenses was found to be 0.0036 per cent. Additional details are shown in Table 14, where the relation of the cost of traffic administration to the total expenditures of a business is found to be only a fraction of 1 per cent, while its relation to the total cost of transportation ranges from 4 per cent for the largest concerns to 12 per cent for the smallest. The average cost of traffic administration varies with the size of the concern.

TABLE 14.—TRAFFIC ADMINISTRATION COSTS COMPARED WITH TOTAL EXPENSES

Total expenses	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average traffic administration costs	Number	Average traffic administration costs	Number	Average traffic administration costs
Over $20,000,000					11	$143,580
$15,000,000 to $20,000,000					3	39,209
$10,000,000 to $15,000,000					3	19,367
$5,000,000 to $10,000,000			5	$13,516	19	22,615
$1,000,000 to $5,000,000	5	$4,025	24	8,144	44	13,187
$500,000 to $1,000,000	4	4,452	17	5,293	3	3,523
$250,000 to $500,000	5	4,080	12	3,841	2	4,936
$100,000 to $250,000	13	3,258	4	3,909		
$50,000 to $100,000	3	578				
$5,000 to $50,000	3	1,133				
Total or average	33	3,206	62	6,690	85	32,770

	Small concerns	Medium-sized concerns	Large concerns
Range:			
Total expenses	$22,776–$3,858,288	$88,000–$9,126,073	$263,814–$127,469,332
Traffic administration costs	225– 17,000	150– 28,450	2,500– 1,106,013

The ratio of traffic administration costs to traffic receipts, as set forth in Table 15, ranges from 53 per cent for a concern spending $22,675 and recovering only $12,021, to 2,256 per cent for one spending $16,000 and recovering $361,000. The average ratio for 51 large concerns was 408 per cent; in other words, they credited $4.08 in money returns or savings for every dollar expended for traffic administration. The many "invisible savings" resulting from service rendered, which are unmeasurable, are naturally not included in these figures.

TABLE 15.—TOTAL TRAFFIC RECEIPTS COMPARED WITH TRAFFIC ADMINISTRATION COSTS

Traffic administration costs	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average total traffic receipts	Number	Average total traffic receipts	Number	Average total traffic receipts
Over $50,000					10	$118,700
$25,000 to $50,000			2	$29,038	15	59,827
$15,000 to $25,000	1	$13,450	6	32,248	17	82,548
$10,000 to $15,000	2	27,137	5	17,259	19	35,140
$7,500 to $10,000	1	8,800	12	8,233	9	18,925
$5,000 to $7,500	9	14,748	21	15,212	16	13,993
$2,500 to $5,000	19	30,673	35	9,093	28	12,376
Under $2,500	9	1,773	16	3,229		
Total or average	41	17,269	97	11,608	114	42,948

	Small concerns	Medium-sized concerns	Large concerns
Range:			
Traffic administration costs	$225–$17,000	$150–$28,450	$2,500–$1,106,013
Total traffic receipts	6–478,500	4–161,549	155– 549,088

For the relation of traffic administration costs to total transportation expenses, see Table 16; to transporting costs, see Table 17; and to traffic managers' salaries, see Tables 18 and 19.

TABLE 16.—TRAFFIC ADMINISTRATION COSTS COMPARED WITH TOTAL TRANSPORTATION EXPENSES

Total transportation expenses	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average traffic administration costs	Number	Average traffic administration costs	Number	Average traffic administration costs
Over $5,000,000					8	$179,454
$1,000,000 to $5,000,000	2	$7,750	12	$13,006	31	26,479
$500,000 to $1,000,000	2	11,500	10	8,445	22	11,673
$250,000 to $500,000	4	7,071	11	5,519	25	18,498
$100,000 to $250,000	12	4,028	19	5,792	20	12,022
$50,000 to $100,000	9	3,593	15	5,000		
$5,000 to $50,000	13	1,896	13	6,210		
Total or average	42	4,097	80	7,088	106	30,341

	Small concerns	Medium-sized concerns	Large concerns
Range:			
Total transportation expenses	$5,604–$3,003,000	$11,436–$6,486,500	$100,000–$9,959,025
Traffic administration costs	225– 17,000	150– 28,450	2,500– 1,106,013

TABLE 17.—TRAFFIC ADMINISTRATION COSTS COMPARED WITH TRANSPORTING COSTS

Transporting costs	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average traffic administration costs	Number	Average traffic administration costs	Number	Average traffic administration costs
Over $5,000,000					7	$46,325
$1,000,000 to $5,000,000	2	$7,750	7	$16,566	32	62,734
$500,000 to $1,000,000	2	11,500	7	7,030	27	11,862
$250,000 to $500,000	3	5,417	11	7,840	15	13,960
$100,000 to $250,000	6	5,066	19	5,571	28	11,117
$50,000 to $100,000	9	4,331	16	5,667	9	7,937
$5,000 to $50,000	19	2,192	17	6,434		
Total or average	41	4,043	77	7,238	118	27,493

	Small concerns	Medium-sized concerns	Large concerns
Range:			
Transporting costs	$2,690–$1,850,700	$4,724–$5,400,000	$18,035–$9,774,031
Traffic administration costs	225– 17,000	150– 28,450	2,500– 1,106,013

TABLE 18.—TRAFFIC MANAGERS' SALARIES COMPARED WITH TRAFFIC ADMINISTRATION COSTS

Traffic administration costs	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average traffic manager's salary	Number	Average traffic manager's salary	Number	Average traffic manager's salary
Over $50,000					5	$9,940
$25,000 to $50,000					11	6,636
$15,000 to $25,000			5	$3,480	6	5,767
$10,000 to $15,000	3	$4,140	2	3,010	13	5,098
$7,500 to $10,000	1	4,200	10	3,058	5	3,940
$5,000 to $7,500	8	3,568	12	2,855	13	3,517
$2,500 to $5,000	14	2,853	25	2,837	22	2,941
Under $2,500	1	2,400				
Total or average	27	3,277	54	2,948	75	4,716

	Small concerns	Medium-sized concerns	Large concerns
Range:			
Traffic administration costs	$225–$17,000	$150–$28,450	$2,500– $1,106,013
Traffic managers' salaries	1,400– 5,100	1,560– 5,400	1,800– 15,000

TABLE 19.—TRAFFIC ADMINISTRATION COSTS COMPARED WITH TRAFFIC MANAGERS' SALARIES

Traffic managers' salaries	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average traffic administration costs	Number	Average traffic administration costs	Number	Average traffic administration costs
Over $10,000					3	$88,646
$6,000 to $10,000					15	29,670
$3,600 to $6,000	6	$7,364	8	$7,517	33	14,176
$2,400 to $3,600	18	4,283	39	6,437	22	4,814
Under $2,400	2	2,470	5	6,226	1	4,500
Total or average	26	5,228	52	6,583	74	18,684
	Small concerns		Medium-sized concerns		Large concerns	
Range:						
Traffic managers' salaries	$1,400–$5,100		$1,560–$5,400		$1,800– $15,000	
Traffic administration costs	225–17,000		150–28,450		2,500–1,106,013	

The cost of traffic administration seems to depend upon two factors—the amount of work to be done or traffic to be handled, and the attitude of a business toward traffic activities. The larger concerns naturally expend more for traffic administration than the smaller ones, due to a larger volume of traffic that requires management and also to a broader conception of the value of such activities.

This does not mean that the relative amount expended for traffic administration is greater in large than in small businesses; quite the contrary, for the smaller firms are found to spend more in proportion to their transportation expenses than do the larger firms. In concerns spending a total of $5,000 to $50,000 per year for transportation, the portion spent for traffic administration is found to be about 12 per cent, while the cost of traffic administration for concerns spending over $5,000,000 for transportation is about 4 per cent. It is very likely, moreover, that the figures are more inclusive and accurate for the larger concerns.

Traffic-administration costs can be expected to decrease as traffic increases. The same economic principle is at work here as in the transportation business as a whole—the law of increasing returns. If a traffic organization is handling a given amount of traffic, it can usually accommodate a vastly increased quantity of business at a relatively small additional expense. Within wide limits a given organization can take care of a large amount of traffic as well as it can a small amount, and the only additional cost involved in handling an increase in business will be found in that portion of the operating expense which varies with the amount and kind of service rendered. Expenditures do not keep pace with services performed; increased business does not result in a proportionate increase in expenses.

With each increase in the amount of traffic handled by a traffic department the cost per unit is found to decrease. The total expenditures for transportation appear to grow faster than the cost of traffic administration.

TABLE 20.—SALARIES OF TRAFFIC EMPLOYEES

Title	Small concerns			Medium-sized concerns			Large concerns			Total	
	Number	Salaries		Number	Salaries		Number	Salaries		Number	Average salary
		Range	Average		Range	Average		Range	Average		
Headquarters executives:											
General traffic manager	2	$4,420–$6,600	$5,510	2	$10,000–$15,000	$12,500	13	$3,500–$15,000+	$9,050	17	$9,038
Assistant general traffic manager							3	2,700– 6,000	4,350	3	4,350
Traffic manager	61	900– 6,000	3,205	114	1,560– 5,500	3,126	162	1,800– 15,000+	4,040	334	3,636
Assistant traffic manager	14	900– 3,900	2,220	20	1,200– 3,500	2,142	58	1,300– 5,000	3,168	92	2,886
Field executives:											
Foreign freight agent							1	4,000– 4,000	5,000	1	5,000
District freight agent							6	2,700– 4,000	4,000	6	4,000
District traffic manager	2	3,200– 3,200	3,200	2	3,600– 3,600	3,600	7		4,342	11	3,963
Technical staff:											
Commerce counsel							3	2,400– 3,900	3,016	3	3,016
Rate expert (chief rate clerk)							8	2,350– 3,250	2,753	8	2,753
Office manager (chief clerk)	1			3	1,100– 2,500	1,740	6	2,445– 3,000	2,479	10	2,745
Export manager			2,400				2	1,800– 3,000	2,400	2	2,400
Statistician							2	1,000– 2,280	1,640	2	1,640
Transportation managers:											
Master stevedore							1		10,000	1	10,000
Railroad location engineer							1		7,800	1	7,800
Transportation superintendent							4	4,200– 4,800	4,650	4	4,650
Transportation manager				1		2,520	9	3,120– 5,000	4,790	10	4,564
Barge superintendent							1		4,500	1	4,500
Physical handling superintendents:											
Supercargo							1		2,620	1	2,620
Chief shipping clerk	20	1,150– 3,600	2,318	41	1,300– 3,600	2,265	42	1,650– 3,600	2,343	103	2,307
Packing-room foreman	1		1,500	1	2,340– 2,600	2,470	7	1,920– 3,000	2,432	10	2,346
Yard foreman						2,000	2	1,500– 2,500	2,000	3	2,000
Wharf superintendent (foreman)	2	1,500– 3,000	2,250	9	1,300– 2,000	1,694	15	860– 2,400	1,953	26	1,896
Loading foreman							4	1,620– 2,160	1,845	4	1,845
Wharf superintendent	1		1,620							1	1,620

3864°—30——8

TABLE 20.—SALARIES OF TRAFFIC EMPLOYEES—Continued

Title	Small concerns			Medium-sized concerns			Large concerns			Total	
	Number	Salaries		Number	Salaries		Number	Salaries		Number	Average salary
		Range	Average		Range	Average		Range	Average		
Clerks:											
Rate	3	$1,740–$1,820	$1,766	2	$1,000– $1,100	$1,050	27	$1,100– $3,000	$2,212	32	$2,090
Shipping	80	720– 2,600	1,745	175	680– 2,400	1,597	287	1,130– 3,000	1,647	542	2,645
Traffic[1]	24	960– 2,080	1,637	63	960– 2,600	1,405	75	960– 2,400	1,680	162	1,535
Stenographic	10	625– 1,560	1,154	12	850– 1,500	1,185	60	850– 1,750	1,300	79	1,316
Billing	6	900– 2,700	1,520	19	1,000– 2,500	1,429	27	600– 1,820	1,185	52	1,313
Laborers:											
Chauffeurs	15	810– 1,820	1,470	16	1,080– 1,950	1,372	14	1,400– 2,000	1,828	45	1,547
Checkers and packers	16	1,040– 1,950	1,638	47	1,000– 1,500	1,212	14	1,456– 1,400	1,356	77	1,393
Laborers	15	1,040– 1,450	1,288	83	600– 1,500	1,166	80	1,000– 1,330	1,191	178	1,198
Drivers	5		1,150							5	1,150
Markers and stencillers				7	900– 1,500	985	5	780– 936	873	12	980

[1] "Traffic clerks" include all clerks handling orders, tracing, receiving, routing, records, foreign shipments, claims, statistics, and secretarial work.

TRAFFIC-DEPARTMENT SALARIES

An analysis of traffic-department salaries first necessitates classification of traffic positions and jobs. The titles assigned to traffic employees can be arranged in seven arbitrarily named groups—headquarters executives, field executives, technical staff, transportation managers, physical-handling superintendents, clerks, and laborers.

Information furnished as to the salaries that are being paid (see Table 20, p. 105) concerned over 50 different titles which have been consolidated into 34, each of which is classified under one of the seven above-mentioned groups. For each position the information is shown separately, and covers large, medium, and small sized concerns together with the minimum, maximum, and average salaries paid in each. Finally, there is given the average salary paid to those holding the title irrespective of the size of the firm.

TRAFFIC MANAGERS' SALARIES

The salary paid the traffic executive is the most significant single item of cost included in the total comprising traffic and transportation administration expenditures. This is due to the importance placed upon the ability of the chief traffic executive to administer properly the traffic and transportation functions of his company.

With a capable traffic manager, the accomplishments of a business along traffic lines depend, first, upon the opportunities offered, second, upon the extent of his jurisdiction over the traffic functions, and, third, upon the cooperation extended him.

With reference to the first of these, no traffic executive, no matter how able, can make an efficient showing where the total expenditures for transportation are too small. Given a sufficient traffic volume to handle, adequate results are usually forthcoming, whether measured in money returns, or in service rendered, or in both.

In the second place, it is only to be expected that the traffic manager must have wide jurisdiction over the transportation activities of his firm. Generally speaking, all traffic functions, being closely related, should be centralized and should be administered by the traffic manager. He is then held responsible for results to the firm's general manager or other active head executive. Reliance is placed on him to take complete care of the transportation interests of his company.

The third requisite for success as a traffic executive is to have the full confidence, backing, and cooperation of those comprising the executive operating board and of the heads of all departments.

For differing reasons many questionnaire replies submitted in this survey failed to include information concerning the salaries of traffic managers. In some cases all salaries were shown except that of the traffic manager; in others a range was given within which the salary for the position was to be assumed. This made it impossible to analyze accurately this important phase of the study. Nevertheless, sufficient data were received to reveal certain facts.

The salaries reported for the traffic managers of 162 representative large concerns ranged from $1,880 to $15,000 or more, averaged $4,090, and stood in the following relation to other items:

TABLE 21.—RELATIVE POSITION OF TRAFFIC MANAGER'S SALARY

Relation of traffic manager's salary to—	Concerns reporting	Range	Average
	Number	*Per cent*	*Per cent*
Traffic receipts (money returns)	79	0.0163–103	11
Traffic administration cost	52	10.6–84	24

The salary paid the traffic manager represents one of the largest items making up the cost of traffic administration. Fifty-two large concerns spending an average of $24,900 for traffic administration paid their traffic managers an average salary of $5,829. While 24 per cent of the cost of traffic administration went to the traffic manager, his compensation amounted to only 11 per cent of traffic receipts. For additional information concerning the relation of traffic managers' salaries to total expenses, total transportation expenses, transporting costs, traffic receipts, and traffic administration costs, see Tables 22, 23, 24, 25, 26, and 27, following; also Tables 18 and 19 on pages 103 and 104.

TABLE 22.—TRAFFIC MANAGERS' SALARIES COMPARED WITH TOTAL EXPENSES

Total expenses	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average traffic manager's salary	Number	Average traffic manager's salary	Number	Average traffic manager's salary
Over $20,000,000					4	$6,800
$15,000,000 to $20,000,000					2	10,000
$10,000,000 to $15,000,000					3	4,267
$5,000,000 to $10,000,000			3	$4,400	6	7,067
$1,000,000 to $5,000,000	4	$3,875	21	3,113	35	3,978
$500,000 to $1,000,000	3	3,483	12	3,436	2	2,050
$250,000 to $500,000	4	2,725	9	2,791		
$100,000 to $250,000	7	2,677	3	2,900		
$50,000 to $100,000						
$5,000 to $50,000						
Total or average	18	3,088	48	3,201	52	4,725
	Small concerns		Medium-sized concerns		Large concerns	
Range:						
Total expenses	$115,406–$3,858,288		$127,254–$9,126,073		$301,675–$32,272,629	
Traffic managers' salaries	1,400– 5,000		1,560– 5,400		1,800– 15,000	

TABLE 23.—TRAFFIC MANAGERS' SALARIES COMPARED WITH TOTAL TRANSPORTATION EXPENSES

Total transportation expenses	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average traffic manager's salary	Number	Average traffic manager's salary	Number	Average traffic manager's salary
Over $5,000,000					6	$8,900
$1,000,000 to $5,000,000	2	$3,450	5	$3,500	17	6,071
$500,000 to $1,000,000	2	3,360	7	3,704	16	4,656
$250,000 to $500,000	[1] 4	4,162	11	3,123	13	3,608
$100,000 to $250,000	11	3,103	15	2,923	14	3,078
$50,000 to $100,000	4	3,700	8	2,496		
$5,000 to $50,000	3	3,350	8	2,865		
Total or average	26	3,432	54	3,046	66	4,865
	Small concerns		Medium-sized concerns		Large concerns	
Range:						
Total transportation expenses	$17,629–$1,863,200		$14,193–$2,850,213		$100,000–$6,515,000	
Traffic managers' salaries	1,400– 5,100		1,560– 5,400		1,800– 15,000	

[1] 2 flour mills, 1 retail furniture store, 1 wholesale grocery.

TABLE 24.—TRAFFIC MANAGERS' SALARIES COMPARED WITH TRANSPORTING COSTS

Transporting costs	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average traffic manager's salary	Number	Average traffic manager's salary	Number	Average traffic manager's salary
Over $5,000,000					3	$8,800
$1,000,000 to $5,000,000	2	$3,450	4	$3,250	18	6,650
$500,000 to $1,000,000	2	3,360	6	3,296	20	4,470
$250,000 to $500,000	3	3,483	7	3,928	11	4,055
$100,000 to $250,000	5	3,500	22	2,957	18	3,450
$50,000 to $100,000	7	3,403	7	2,635	8	2,640
$5,000 to $50,000	7	2,774	10	2,754		
Total or average	26	3,262	56	3,059	78	4,658
	Small concerns		Medium-sized concerns		Large concerns	
Range:						
Transporting costs	$14,334–$3,000,000		$4,724–$5,400,000		$50,000–$6,500,000	
Traffic managers' salaries	1,400– 5,100		1,560– 5,000		1,800– 15,000	

TABLE 25.—TRANSPORTING COSTS COMPARED WITH TRAFFIC MANAGERS' SALARIES

Traffic managers' salaries	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average transporting costs	Number	Average transporting costs	Number	Average transporting costs
Over $10,000					2	$3,237,199
$6,000 to $10,000					13	2,216,499
$3,600 to $6,000	8	$386,604	8	$369,624	38	1,006,392
$2,400 to $3,600	16	311,416	41	265,957	22	437,124
Under $2,400	2	40,539	8	93,225	8	880,793
Total or average	26	313,714	57	256,263	84	1,038,887

	Small concerns	Medium-sized concerns	Large concerns
Range:			
Traffic managers' salaries	$1,400–$5,100	$1,560–$5,400	$1,800–$15,000
Transporting costs	14,334–3,000,000	4,724–5,400,000	50,000–6,500,000

TABLE 26.—TRAFFIC MANAGERS' SALARIES COMPARED WITH TOTAL TRAFFIC RECEIPTS

Total traffic receipts	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average traffic manager's salary	Number	Average traffic manager's salary	Number	Average traffic manager's salary
Over $100,000					8	$8,500
$50,000 to $100,000	2	$2,600	5	$3,734	8	7,735
$25,000 to $50,000	6	3,650	4	3,325	14	5,178
$10,000 to $25,000	4	3,780	8	2,725	16	4,606
$5,000 to $10,000	4	3,712	14	3,329	10	3,340
Under $5,000	11	2,729	32	2,860	17	3,119
Total or average	27	3,225	63	3,046	73	4,966

	Small concerns	Medium-sized concerns	Large concerns
Range:			
Total traffic receipts	$6–$478,500	$4–$161,549	$155–$549,088
Traffic managers' salaries	1,400–5,100	1,560–5,400	1,800–15,000

TABLE 27.—TOTAL TRAFFIC RECEIPTS COMPARED WITH TRAFFIC MANAGERS' SALARIES

Traffic managers' salaries	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average total traffic receipts	Number	Average total traffic receipts	Number	Average total traffic receipts
Over $10,000					4	$144,625
$6,000 to $10,000					13	152,771
$3,600 to $6,000	8	$13,753	9	$23,805	31	39,047
$2,400 to $3,600	20	48,176	46	10,510	23	11,011
Under $2,400	2	10,806	8	1,995	1	225
Total or average	30	36,505	63	11,328	72	55,951

	Small concerns	Medium-sized concerns	Large concerns
Range:			
Traffic managers' salaries	$1,400–$5,100	$1,560–$5,400	$1,800–$15,000
Total traffic receipts	6–478,500	4–161,549	155–549,088

The average salary for traffic managers of large concerns spending various amounts for transportation is illustrated by the reports of the following 15 companies:

TABLE 28.—AVERAGE SALARY PAID TRAFFIC MANAGER BY LARGE CONCERNS

Size of concern based on transportation costs	Number of concerns	Traffic manager's average salary
$2,500,000 to $6,500,000	3	$9,666
$1,000,000 to $2,500,000	4	7,500
$600,000 to $1,000,000	3	3,600
$250,000 to $600,000	5	4,000
Total or average	15	6,000

These 15 companies paid their traffic managers an average salary of $6,000; received an average of $78,000 returned to them each year through the efforts of their traffic departments; their traffic administration represented an average profit of $6,000 per month; at the same time these firms were purchasing and managing an average of $1,660,000 worth of transportation service each and rendering additional traffic services of untold value to their respective businesses.

Little information is available on which to base a comparison between the salaries paid traffic executives and those paid the heads of other departments. The traffic manager of a New York paper manufacturing concern contributes the following:

How do we rank in the organization as compared with other departments? All departments follow our instructions in all matters pertaining to transportation, and in executive salaries we are about equal with the purchasing department and exceed those of the accounting, sales, and certain other departments. The salaries of the clerical forces in this department equal, or will equal before 1929, those of other departments, and at present one salary exceeds that of any other department.

This is more favorable than is generally the case in the average concern. The heads of the production and sales departments, particularly, are believed to receive remuneration exceeding that of the traffic, although information was not sought on this point and there is little substantiating evidence. The facts collected seem to demonstrate that traffic executives are underpaid. Their salaries certainly do not seem to be exorbitant in view of the results accomplished.

SAVINGS RESULTING FROM TRAFFIC ADMINISTRATION

That traffic administration is not productive, but represents "dead expense" or "overhead expense" resulting solely in expenditures for services rendered, has sometimes been claimed. In fact, persons not well acquainted with traffic work seem generally to believe this to be the case.

The questionnaire replies reveal quite a different situation. A traffic department is an advisory department, like a legal department; it is also a service department like the purchasing department; hence it can not always show money returns for many of its most essential and useful activities. But sometimes it is also a productive unit in so far as it actually produces storage services, performs transportation services, or takes care of the various necessary plant operations such as those of the receiving, packing, and shipping rooms. In addition, every traffic department recovers sums that would be lost to its firm were it not a part of the organization.

SOURCES OF MONEY RETURNS

Among the sources of traffic savings and receipts reported are:

Steamship contracts.
Ocean-rate contracts.
Intercity hauling contracts.
Cartage contracts.
Warehouse contracts.
Tank-car rentals.
Private-car mileage revenues.
Overcharge claims.
Switching claims.
Demurrage claims.
Loss and damage claims.
Interest on claims.
Inbound rates on shipments milled in transit.
Freight-bill auditing prior to payment of bills.

Auditing transportation items on invoices of customers and suppliers.
Credit and debit adjustments on freight allowances.
Debiting shippers for excess freight paid account violation of shipping orders or failure to observe routing instructions.
Classification, rate, and tariff adjustments.
New or reduced rates secured for new plants or on new products.
Informal complaints filed with Interstate Commerce Commission.
Special docket complaints.
Reparation docket cases.
Special service arrangements.
Weighing agreements.
New methods of forwarding advertising.
Changes in methods of shipping parts.
Disposing of old containers, packing materials, and waste.
Consolidating less-than-carload shipments.
Pooling orders.
Consolidating truck shipments.
Drawbacks for customs import duties paid, when goods are exported.
Excess customs duty returned on customs protests.
Insurance for pilferage, fire, marine, or other losses or damages sustained on cargo, freight, parcel-post, or express shipments, or for vessels, cars, trucks, warehouses, etc.

These are not all of the sources credited for money paid out and later recovered or for sums that would have been expended had not more favorable arrangements been made; they are, however, those most frequently mentioned. They clearly indicate that traffic work can not be classified as merely operating routine. To prevent waste and accomplish such savings managerial ability of a high order must be displayed.

Some difficulty was experienced in interpreting the questionnaire figures on money returns because of the omission by many of the firms of reports covering returns from all of their traffic activities. For example, savings due to rate adjustments sometimes were not given. Naturally, this resulted in totals which were less than the true aggregate. For this reason no attempt is made to indicate the relationship existing between the more prominent sources of money returns, but in the order of their importance the data indicated the following arrangement: Rate and classification adjustments; claim collections; contracts for services; improvements in packing.

The money returns due to traffic administration in 114 large concerns ranged from $115 to $549,088, averaged $42,948, and stood in the following relation to traffic expenditures:

TABLE 29.—RELATION OF MONEY RETURNS TO TRAFFIC COSTS

Relation of total traffic receipts to—	Concerns	Range	Average
	Number	*Per cent*	*Per cent*
Transporting costs	135	0.001 to 33	7
Traffic administration costs	51	3 to 2,256	408

For additional data showing the comparative relation of traffic receipts to traffic-administration costs, traffic managers' salaries, and total transportation costs see Tables 15 and 27 preceding (pp. 102 and 111) and Table 30 below, which tend to refute the contention that traffic administration is a "dead expense."

TABLE 30.—TOTAL TRAFFIC RECEIPTS COMPARED WITH TOTAL TRANSPORTATION EXPENSES

Total transportation expenses	Small concerns		Medium-sized concerns		Large concerns	
	Number	Average total traffic receipts	Number	Average total traffic receipts	Number	Average total traffic receipts
Over $5,000,000					9	$629,935
$1,000,000 to $5,000,000	2	$251,772	13	$51,162	30	70,520
$500,000 to $1,000,000	2	23,170	11	17,329	26	35,470
$250,000 to $500,000	5	20,272	12	7,204	28	18,476
$100,000 to $250,000	13	10,749	23	9,808	24	7,358
$50,000 to $100,000	12	2,544	20	5,260		
$5,000 to $50,000	19	1,147	28	1,872		
Total or average	53	15,911	107	12,386	117	80,352

Range:	Small concerns	Medium-sized concerns	Large concerns
Total transportation expenses	$6,200–$3,003,000	$11,436–$6,486,500	$100,000–$9,959,025
Total traffic receipts	6–478,500	4–161,549	155–5,000,000

MONEY RETURNS AS AN INDEX OF TRAFFIC-DEPARTMENT EFFICIENCY

The amount of money collected and returned to an industry through the efforts of the traffic department is only one index of its efficiency. Other guides exist; but it is not always easy to state, for example, the results accruing from rate and classification adjustments, because these results are cumulative, year after year, and many activities are of a service nature, which, while of money value, can not be measured in terms of dollars and cents.

RATE AND CLASSIFICATION ADJUSTMENT RETURNS

Traffic managers disagree as to their ability to measure the savings which they have accomplished and the actual amount of money returned or retained as a result of their direct efforts in rate and classification case adjustments. Nevertheless, the fact that some of them do figure this item in dollars, annually, demonstrates that it is possible to do so.

The reason many do not show this source of revenue may be the difficulty of determining the actual results in which they solely are interested—savings resulting from their own efforts as differentiated from results due to joint activity. In many cases it was clear that this hesitancy in publicly claiming savings from rate adjustments was due to individual policy reasons and not to insurmountable accounting difficulties. No doubt was left, however, as to the importance which they place on such savings. Others apparently had never considered recording such accomplishments. Without question this

is the greatest source of money returns and the function concerning which a great many traffic departments make their best showing.

CLAIM COLLECTIONS

As a general thing it is found that the money returned to a firm through administration of such traffic activities as loss, damage, delay, and overcharge claims tends to decrease each year when accorded vigorous handling. The first year a traffic department is in operation it shows the largest collection of funds from such claims. As time goes on and claim prevention is practiced more and more intensively, the causes creating claims are detected and stopped, with the result that fewer occur and correspondingly fewer collections are made.

This reflects credit upon a traffic department. The fewer the claims the better the management. While smaller cash receipts would seem to indicate less efficiency, they really reveal more efficiency. Even when claims are paid in full a business can not afford to have them. Hence, money returns for claims collected are considered by traffic men as an unsatisfactory index of managerial ability and departmental efficiency.

When claim-prevention efforts can be pointed to, and claims still persist, the amount from collected claims remains a sound index of traffic efficiency. In other words, even though a traffic department exercise its utmost efforts to prevent causes for claims, there will be claims arising in connection with matters outside their control. Such claims should be detected, followed up, and collected. The amounts thus recovered represent savings to the firm and are an index of traffic-department efficiency.

SAVINGS IMPOSSIBLE TO MEASURE

Traffic men agree that they are decidedly limited in the amount of savings which they can figure in dollars and cents. A prominent Boston traffic executive writes:

> Unfortunately the traffic manager can not show distinctively the savings made by his department as can be done by other departments; but the traffic man is saving continually not only in his own department but in all the other departments of the company. In many matters, such as when purchases can be made most advantageously and in legal matters pertaining to interstate commerce and sales, the traffic man effects great savings.

The general traffic manager of a large manufacturing concern, with headquarters in New York City, had the following to say on this matter:

> When a corporation installs a traffic manager and a traffic department, that traffic manager or department usually appears on the books as an expense, a liability—a loss, in fact—right along side of the stenographic room or similar items of expense.
>
> The conditions are not the same. The former is buying (transportation), salvaging, advising, possibly making purchases and sales researches out of his academic transportation interest, and is doing many other things. Nevertheless he is on the books as a source of expense, merged with other expenses going to determine a profit or loss balance at the end of the year; he is considered a 100 per cent debit and a zero credit from an accounting standpoint.
>
> In the management's mind he probably has some assets, equaling or exceeding his liabilities; otherwise they would dismiss him and close out his department

the same as they would an insolvent debtor. But, without some kind of a tangible traffic-department ledger and balance sheet, traffic-department assets are mere guesswork, while liabilities are positive facts as stated by the books. * * * Therefore, if accounting ever pays for itself, then the corporation's traffic department should have its ledger and balance sheet.

On this point a prominent Seattle certified public accountant made the following comment:

The comptroller, who should always be familiar with the activities and possibilities of all the departments, can cooperate with the traffic manager as he does with the heads of other departments and assist him in the matter of keeping his records. He can take the traffic records furnished by the department and compile statistics showing the operating efficiency of the department. Of course, it is impossible to show the full amount of the saving to the business by the operation of a traffic department as it will save in so many ways which can not be expressed in dollars and cents, and also in many ways which the traffic manager himself will never realize. For this reason the figures can not be used in a profit-and-loss statement of the firm, which must contain cold facts alone. But the comptroller can and should show in his statistical report to the general manager just how efficient he considers the traffic department to be.

Comptrollers have shown the management how the accounting department has saved the business vast sums in connection with both general records and cost records. They can in the same way show how a properly operated traffic department can effect a wonderful saving. By showing this in a general report it comes effectively to the direct attention of the general manager. Coming from a disinterested party, the comptroller, who should be an expert in business management and procedures in general, and in records, statistics, and reports in particular, no one is in position to dispute his findings. The traffic manager will thereby secure the full benefit of traffic-department accomplishments. He will thus be valued and respected, as he has seldom been heretofore, as one of the key executives in representative business organizations.

As to the concern that does not have a comptroller, nor an auditor performing such services: Until such time as there is an independent official competent to prepare coordinated reports of all activities for the guidance of the general manager, the traffic manager and the other department heads should continue to file their own statements periodically, preferably monthly. These traffic-department reports should detail in nontechnical language, first, the various savings that can be credited to the efforts of the traffic staff; second, the expense or debit items; and, in the third place, the profits or losses of the department.

THE COST OF ADEQUATE TRAFFIC ADMINISTRATION

It is practically impossible to answer satisfactorily the question, "How much is it necessary for a concern to spend in order to receive adequate traffic management?" Every enterprise presents its own individual set of conditions and problems. Each case must be individually analyzed. No single formula is sufficient to cover all businesses. Generalization is valuable only as a guide.

In general, the average expenditure made for traffic administration can be assumed as a minimum. Few firms are believed to overdo their expenditure for the managing of this phase of their business; the great majority appear to spend too little. In other words, the average traffic-administration cost for the large concern amounts to 2.56 per cent of the cost of transporting its goods. Money returns of 408 per cent of the amount expended for traffic administration would indicate this to be a good investment. A concern spending $500,000 for transporting its goods via carriers and for the production of transportation service by its own transportation facilities should, under this formula, spend not less than $10,000 for traffic administration.

Many of the costs charged to traffic administration are made for matters that would require handling and expenditure regardless of whether a traffic department is maintained or not. They are, in reality, operating costs. One small company makes the following statement on this significant situation:

From the standpoint of department cost, if our traffic department should be discontinued many of the details handled by it would have to be taken over by other departments with no saving in expense, which, with the cost of obtaining from outside agencies necessary traffic information and service, would undoubtedly equal or exceed the present expense, and results might not be as satisfactory.

An executive of a large New York enterprise writes: "In my opinion, any industry that is doing over $500,000 worth of business should employ a man to be in charge of traffic matters"; and he went on to state his belief that the amount spent for traffic administration should be "1½ to 3 per cent of gross business over $500,000."

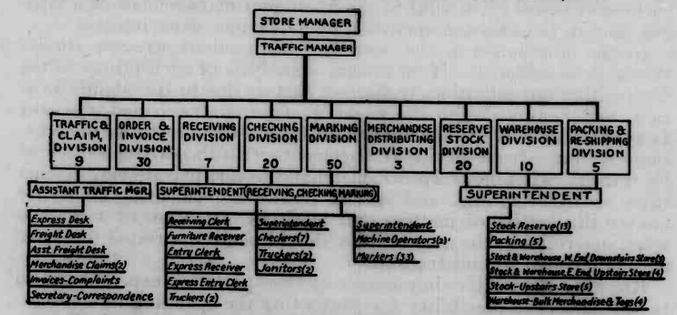

FIGURE 16.—LARGE DEPARTMENT-STORE TRAFFIC ORGANIZATION

"Without a traffic department the store would lose approximately $50,000 per year." Last year this traffic organization, costing $85,000, spent $450,000 for transportation, all items included. A good share of the expenditures for the department should have been apportioned to operating costs, for it performed various services, such as the marking and pricing of goods received, which elsewhere are not considered traffic duties. The traffic organization, with its 156 employees, comprises 7 per cent of the store's force.

In the opinion of the general traffic manager of a large chain-store company—

The cost of an adequate traffic department will depend upon the following conditions:

Volume of raw materials shipped to point of manufacture.
Volume of finished articles shipped to point of distribution or to point of consumption.
Commodity shipped.
Method of shipping.
Length of hauls.

The problem of the cost of adequate traffic management, however, is one that is of chiefest concern to small businesses. They usually are the ones found not administering such matters, and the common reason given for this lack is the expense connected with such service. Consequently this question is further discussed (in Chapter IX) in connection with the size of the business that will justify traffic administration.

FACTORS TO BE CONSIDERED

In order to determine the amount of money to appropriate for traffic management three factors should be taken into consideration. The total amount that is being spent for transportation should first be known. This necessitates at least the keeping of separate accounts covering each of the nine items of a transportation-expense nature (p. 91) and totaling them.

In the second place, the amount of savings of a character that can be actually measured in money—(1) by preventing the expenditure of as large an amount as would otherwise be necessary; or (2) having been expended, by the recovery of excess amounts—should be determined.

In the third place, consideration should be given to the importance of the intangible services rendered by a traffic department. Irrespective of whether they can be measured in money returns or not, such services are often vital to the intelligent management of a business and to the effective operation of its various departments.

In the fourth place, the need for traffic-administration studies should be considered. If an intensive analysis of such things as the competitive rate situation, traffic cost factors due to the plant's location, cost factors due to the packing and containers used, the cost factor incident to the particular plant layout, the possibility of securing advantage from service arrangements with the carriers—such as by transit, switching, trap-car, merchandise-car, private-car, demurrage, credit, weighing, and special service agreements. These are merely illustrative of matters that merit the attention of a concern when determining the amount that should be appropriated to secure adequate traffic administration.

Knowing the relative importance of transportation expenditures to the business, the possibility for preventing the spending of unnecessary sums or of recovering excess amounts paid out, the value of the services rendered by a traffic department, and the possibility for improvement in operating efficiency and for a decrease in operating cost through study of the traffic-management problems of the business, the executives are in a position to determine whether or not a traffic department is necessary and the amount of financial support it should receive.

There are hundreds of inadequately financed traffic departments in business. A broader conception of traffic work and the more liberal financial backing of traffic organizations should prove profitable.

CHAPTER IX

RELATION OF SIZE OF BUSINESS TO TRAFFIC ADMINISTRATION

It would be difficult to find anyone to-day who would question the statement that every business should be skillfully managed. Good business management requires the administration of all activities—production, sales, purchases, financing, accounting, traffic, credits, engineering, personnel, and the others—and all are common to the small company as well as to the large.

While it is estimated that half of the traffic moved in the United States receives attention, it is believed that, because of the preponderance of the small business establishment, traffic management as such is found in a very small proportion—perhaps not more than 5 per cent—of the country's individual businesses.

Of the concerns answering the query, "Have you a traffic department," 50 per cent said "yes"; 30 per cent replying either by questionnaire or by letter answered "yes." Although the questionnaire went to enterprises both with and without departments, most of them were placed in the hands of firms which, it was believed, would be able to furnish assistance out of their own experience. The weight of the replies should therefore have been "yes" on this question. It was further assumed that the firms with departments were the ones more likely to reply; hence those that did not reply by either questionnaire or letter are believed not to have traffic departments in the overwhelming number of cases. Furthermore, of those not called upon for information, probably no great number have traffic departments.

THE FACTOR OF SIZE

One of the reasons most frequently advanced for not having a traffic department concerned the size of the business. While the cost item always is paramount, many businesses do not "manage" their traffic because of their small size.

Scores of questionnaire replies simply stated, "Business not sufficient to justify a traffic department," or words to that effect; and it was not always easy to determine what that size was nor the extent of their shipping.

While a firm may honestly believe it does not require traffic administration because the business is small, nevertheless, regardless of size, if a firm spends any appreciable sum for transportation services or if transportation is important in obtaining raw materials or in marketing finished products, it would seem to need in its employ some one who understands traffic matters, just as some one is required who understands financing, accounting, and selling regardless of the size of the enterprise. Size does, of course, regulate the amount of traffic management needed.

WHEN IS A BUSINESS SMALL?

This naturally raises the question, "When is a business considered small and when is it considered large?"

Various methods are available for measuring the size of a business, such as its annual gross receipts, gross earnings, total expenditures, capitalization, number of units produced, area of space required, or number of employees. Concerns can be classified quite satisfactorily as small, medium, and large on the basis of number of employees, although a large business in one industry, such as the milling of flour, may require few employees, while a small business in another, such as a 5-and-10-cent store, may necessitate a large force.

Generally speaking, and for the purposes of this study, a concern is considered small when it employs less than 100 people, medium size when it employs between 100 and 500, and large when it employs 500 or more.

Opinions differ on this, as on nearly every other point. A business may be considered large in the West and small in the East, or it may be large as judged by concerns in other lines of business and small as compared with similar concerns in its own trade. The superintendent of a cotton-textile mill employing 1,000 men writes: "Firm not of sufficient size to need this separate department," and the general manager of a pipe-manufacturing and pipe-bending company states: "We have a small plant employing about 1,000 men, and any traffic problems are handled by our traffic agents—a traffic service bureau located right here in our own city"; but, taken the country over, the number of concerns found in groups designated as "small," "medium," and "large" would indicate that size based on the number of employees is a fair, common, and convenient, although not necessarily the best, basis of measurement.

DOES THE SMALL BUSINESS NEED TRAFFIC ADMINISTRATION?

It is not uncommon to hear remarks similar to that made by an official of a sand company in the Southeast: "There is no doubt of the importance of the traffic department in any business, and it has been neglected sadly, particularly by most small businesses."

Almost all large firms, half of the medium-sized, and some small ones "manage" their traffic, while the majority of small and many medium-sized firms do not. They claim traffic management is not needed in their case because they do not handle a sufficient amount of business. The question may be asked: Is it the volume of business that dictates the need for traffic management? If it is, how can a small firm without such management hope to compete for any length of time with large firms engaged in the same line that have the best of traffic management? This difference between the small and the large concern in managerial strength is recognized by the owner of a small Kentucky flour mill, who wrote: "What the smaller shipper needs is simpler tariffs, or some other method whereby he is assured of enjoying equal rates with the larger concern that employs expert traffic advisers."

Management is needed for all activities, traffic included, regardless of the volume of such activities. An eastern traffic executive recognizes this:

> It is somewhat inaccurate to refer to size as a measure for determining the need of a traffic department. As a matter of fact, it is the nature of the particular industry rather than mere size that should regulate the matter. In other words, it is not necessarily a matter for criticism that a very large industry does not have a traffic department, while it is also not necessarily true that a much smaller industry does not need a traffic department. Without having attempted to work out the exact wording of this section it would seem that a combination of the words "nature" and "size" might take care of it.

A contrast in the experience encountered in dealing with both large and small firms has been noted by one company, which seems further to point the need for traffic administration on the part of small concerns:

> In the course of our business we purchase material from many different firms, some of them with well-organized and competent traffic departments, and from them down to smaller concerns with no traffic department whatever. It has been our experience that our larger sources of supply, with well-organized traffic departments, can be depended upon to ship goods in the most economical manner; it is very seldom that we have occasion to make any changes in their manner of shipment except occasionally with respect to routing, due to our knowledge of local conditions.
>
> However, in connection with shipments from the smaller concerns with no traffic department we must be constantly on our guard, as we find they are prone to fail in loading carloads up to the minimum carload weight and to properly describe shipments on bills of lading and on shipping documents in order to obtain the lowest legal classification.
>
> By closely watching the shipments of small concerns we often effect economy in freight charges by instructing them to pack materials taking a lower classification separately instead of mixing them with higher-rated articles and thus subjecting the entire weight of the shipment to the higher rate.

IS THE COST PROHIBITIVE FOR THE SMALL CONCERN?

A discussion of the cost of traffic administration in relation to small concerns is very significant. If it were not for the cost, all firms, regardless of size and complete need, would doubtless avail themselves of traffic management.

Because of this, cost may be considered the chief barrier to adequate industrial traffic management. The general subject of cost was covered in Chapter VIII. The average annual expenditure of 41 small concerns for traffic administration was found to amount to $4,043, which represented about 8 per cent of their transporting costs.

Since a traffic manager of high ability is desirable—and practically a necessity—and since the services of such an executive can not be procured for less than $3,600 to $5,000 a year, small concerns must find some way of securing adequate administration within reach of their pocketbooks. Small firms able to spend, say, $500 to $1,000 a year for traffic administration usually have only a limited amount of traffic work requiring expert handling, calling for the time of a traffic executive equivalent to about one day in five. Nevertheless the details concerning such traffic should receive expert handling.

3864°—30——9

HOW DO SMALL FIRMS HANDLE THEIR TRAFFIC?

A careful study of the questionnaire replies revealed that the average small business (*a*) is not attempting to manage traffic at all, or (*b*) is managing only a few traffic activities, or (*c*) is calling upon outside organizations to handle part or all of its traffic management functions.

BY NOT ATTEMPTING TO "MANAGE" TRAFFIC

The small business is sometimes justified in not "managing" any phase of its traffic. It is justified when it is absolutely certain that traffic and transportation matters, first, do not adversely influence its earnings and, second, do not hinder its normal and natural growth. The success of a business is measured by the character of service rendered and the amount of profits earned. If profits may be enlarged through elimination of any avoidable transportation or traffic wastes, then administration of the traffic functions appears justifiable.

Many firms handle products to the exclusion of others in either a local or a national territory—sometimes because there is only enough business to support one house, sometimes because of a monopoly resulting from patent rights or other factors. Such concerns can continue to market their products regardless of price—always, of course, keeping prices within the range of "what the traffic will bear"—particularly where their goods represent necessities; and often can operate at a profit even though they waste money by spending more than is necessary through lack of good traffic administration.

Where there is no monopoly many businesses still can operate without traffic management because their competitors operate in like manner. Nevertheless, a concern that can sell at prices based on a production cost that includes wasteful shipping methods could, were it to eliminate waste, either (1) continue to sell at the same prices, and obtain a wider margin of profits; or (2), should competition come, it could cut prices and still handle business at a profit; or (3) by reducing its sales price it might increase its volume of sales and thus make greater profits even though based on lower prices.

One retail store, typical of small and large retail establishments everywhere, wastes money through lack of traffic knowledge regarding transportation routes. With plenty of time for consignments to arrive, it orders goods sent more than 2,000 miles by express, whereas the cheaper all-rail, rail-lake-rail, or ocean-rail carriage would adequately meet requirements.

There is no excuse for waste and no justification for the argument that inasmuch as all costs (including unnecessary wastes) are passed along to customers, the merchant need not bother himself to eliminate wasteful methods. This is an economic fallacy that should be exploded.

Mistakes made by firms not having traffic administration often are charged back against them by firms that do have traffic departments and understand the cause of such errors. A large shoe manufacturer in New York State writes: "We have avoided waste by collecting from shippers on account of short minimum weights, and for reconsigning shipments." This not only places the waste where it belongs—on the concern creating it—but may lose business for the latter and hence hinder the firm's normal growth.

BY MANAGING ONLY A FEW TRAFFIC ACTIVITIES

So much for the small business that does not attempt to "manage" its traffic in any way. The second group of small businesses comprises those taking adequate care of a few of their traffic activities. The very fact that it compensates them to manage a few may lead them, when the opportunity for further savings is made clear, to administer others. The few activities which they handle do not by any means constitute all the functions available for handling.

Another frequent practice is to place traffic administration under the direction of an executive who also has jurisdiction over other phases of the firm's work. A small manufacturer of heaters follows this practice:

> We have found it very satisfactory to have the traffic department and the order department combined under one head, working directly with the sales department. Traffic department also has charge of keeping stock records of heaters and appliances at the different warehouses to ascertain from which branch a certain order can be filled and forwarded to arrive at destination in good order and at the lowest transportation charges.

This is further illustrated by Figure 17.

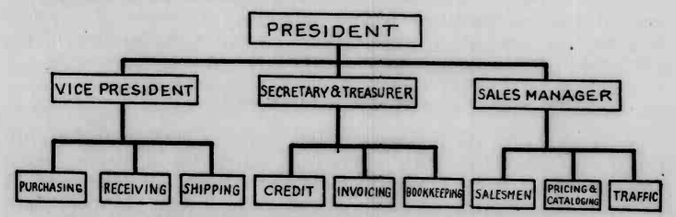

FIGURE 17.—PLACE OF TRAFFIC WORK IN A SMALL DISTRIBUTING ORGANIZATION

This small business, devoted to the jobbing of plumbing, mill, and railroad supplies, spends $32,000 annually for transportation. The chart shows the traffic manager serving the sales department directly, while receiving and shipping work is placed under a vice-president handling purchasing.

BY MANAGING ALL TRAFFIC FUNCTIONS THEMSELVES

Finally there are business houses which, although small in size, nevertheless attempt to handle their own traffic work. Small-firm traffic departments are growing in number as appreciation of the purposes and value of traffic management grows. It is being forced upon some small concerns in order to meet the costs and services enjoyed by their large competitors.

The need for traffic management exists in proportion to the amount of shipping done and its importance to a business. Just because the business is small in capital invested, in number of employees, in volume or number of shipments made, or as measured by any other unit, does not in itself indicate that its traffic does not require expert managerial attention. In the degree that it exists the traffic is equally important to the small as to the large concern. This is being more and more widely appreciated; and where it is not, difficulties are encountered—without their real cause always being known.

The danger in the plan lies in requiring, when a traffic manager is not employed, some executive of the company who is not a specialist

in transportation to give his attention to traffic administration matters. He may, quite innocently, overlook the proper solution of or otherwise mishandle traffic problems as compared with the way the traffic managers of his firm's competitors handle them.

It is therefore highly important to find a satisfactory solution to "the high cost of good traffic management." The use of outside firms to supplement the efforts of the inside management is recommended as the way out for small concerns, but a careful preliminary investigation should precede the selection of the type and character of outside organization to be employed.

BY USING OUTSIDE TRAFFIC ORGANIZATIONS

Some small concerns delegate a portion of their traffic activities to outside traffic bureaus and handle the remainder themselves; or arrange with outside bureaus to handle all of their traffic activities.

There are various types of cooperative agencies for serving other establishments in the management of their traffic activities. It is the purpose of some to handle detailed traffic-administration functions; of others to take care of the traffic problems of shippers in general and not particularly the individual problems of a single shipper. In considering what follows a clear understanding of the purposes of each outside organization should be carried in mind.

CARRIER TRAFFIC DEPARTMENTS

A substitute for the industrial traffic manager is the use of carrier traffic representatives. An interesting statement is quoted below from an executive of a New England manufacturing company. It illustrates the dependence and confidence which some shippers place in the railroads handling their traffic:

> Nearly all of our customers give us shipping instructions and our goods are sold f. o. b. this place. When the orders are received by the order-department clerk, if the routing is a new one or one that we are not frequently using, it is referred to the director of traffic, a paid employee of the railroad, for checking and advice; and if the routing is not considered the most direct or quickest route, we then advise our customer and suggest the better route. * * *
>
> We are furnished, through the above-mentioned traffic office, with rate statements as requested, which gives us a statement, showing the rates via different routes, including the differential rates (rail-and-water and rail-water-rail rates), with information as to the service via each line. This gives us a chance to confer with our customers and move the shipments via the cheaper lines when the matter of service is not important, or via the best service lines when that is the paramount point.
>
> The matter of containers and classifications has been, through the agents of the traffic office, fully explained to the shipping departments of the Maine industries and has entirely eliminated the troubles of misrouted shipments, excess charges for containers not in accordance with the classification requirements, and overcharges account of wrong description.

PUBLIC TRAFFIC BUREAUS

If only $500 to $1,000 a year can be expended and time equivalent to but one day a week is required, adequate traffic administration for the small concern can be had only by clubbing in with other small concerns similarly situated, and preferably in the same line of business, and employing a capable man in common. The use of public traffic managers is reported from every part of the country and from

firms engaged in many industries. In St. Paul, six producers and dealers handling building stone use one traffic manager; in Iowa, several small pearl-button manufacturers cooperate in maintaining a single traffic department; in Pittsburgh, one traffic man serves eight small sand and silica dealers; in New York City, seven or eight small manufacturers in different lines of business are served by a single department. An Ohio firm states:

> Our business is not complicated enough to have a regular traffic department. In September, 1927, we, together with several other plants in our section, engaged the services of a traffic bureau located in ———, for a period of three years. This costs our company its proportion, being $104 per month. This traffic bureau looks after all our traffic matters, giving us any changes in rates on our commodity.
>
> We are furnished with a rate book showing carload rate from our shipping point to any destination. We make very few less-than-carload shipments, and in this case are not interested in rates as our price for the material is f. o. b. our plant. On inbound material used in process of manufacture, we use only two items in large quantities. These rates are known by us at all times, as we buy from the same parties year after year. Our inbound less-than-carload shipments are very limited, the total freight charges for a year not amounting to over $1,500. With the information furnished us by our city traffic connection, no additional services are needed by us.

There are public traffic service bureaus of still another type—those handling a single phase of traffic-management routine. For example, some organizations are set up for the purpose of looking after, not all of the traffic affairs of clients, but only such things as the audit of freight bills and the filing and collection of overcharge claims. An Indiana foundry, employing about 250 men at three plants, reports "the checking of freight bills for overcharges, etc., is left to outside bureaus and firms that specialize in such matters."

COMMUNITY AND TRADE-ASSOCIATION TRAFFIC BUREAUS

An outside source of traffic-management assistance that is widely used in substitution for traffic organizations established as a part of business institutions is offered by community and trade associations. All members of such organizations are entitled to use their traffic bureaus, and much valuable assistance can be secured therefrom.

The importance placed upon the services furnished by trade-association traffic bureaus is indicated by the following statement received from a chair manufacturer employing 250 men in two plants:

> Our secretary-treasurer, who is also our plant manager, looks after all traffic matters which are handled for us by our manufacturers' association. We ship everything carload and the association's help covers our requirements for a department.
>
> We could not compete in our industry without the help of a traffic department to secure low rates to points where competition is strong. Audit of freight bills is a big saving so we can detect unreasonable freight charges and overcharges.

A cotton mill located in the Southwest advises: "Our State association maintains a traffic department whose service is open to all members."

Most of the cooperative bureaus located in small cities look after the audit of transportation bills, the filing and collection of loss and damage claims, and the handling of rate adjustments. They seldom

study their client's motor-truck situation, make comparative studies of his rates with those of competitors, analyze shipping container and packing conditions, or undertake any other such vital traffic administration matters on their own initiative.

The treasurer of a company manufacturing batteries and lights furnishes the unusual illustration of a concern that has given up its traffic department in favor of assistance rendered from the outside. He states:

> We wish to explain to you that, beginning with January 1, 1929, we changed our entire plan in relation to traffic. We have discontinued a special traffic department within our own organization and are employing the facilities and expert knowledge of the ——— traffic bureau in its stead. This bureau is an association of manufacturers which employs a very high class and efficient traffic man, with the necessary assistants to carry on the work. We had always cooperated with this department, even when maintaining our own. * * * We do not believe we have sacrificed any of the advantages of a traffic bureau within our own organization by doing this.

IS TRAFFIC ADMINISTRATION PROFITABLE TO THE SMALL CONCERN?

Hundreds of testimonials to the effect that traffic administration is profitable to small concerns could be cited. Only one will be given by way of illustration.

A seed company earns 326 per cent on its investment in a traffic department. In other words, while spending $5,000, it received $16,300. This is a small firm, with total transportation expenses amounting to 28 per cent of its cost of doing business—which is about the average. The figures reported were:

Traffic expenditures:	
Transportation	$23,843
Packing and shipping containers	39,743
Plant transportation and materials handling	2,500
Traffic administration	5,000
Total traffic expenditures	71,086
Traffic receipts:	
From rate adjustments	12,000
From overcharge claims	1,500
From loss and damage claims	1,800
From cartage and warehouse contracts	1,000
Total traffic receipts	16,300

WHAT SIZE BUSINESS JUSTIFIES A SEPARATE TRAFFIC DEPARTMENT?

What must be the size of a business to justify maintaining a separate traffic department? The controlling factors in setting up separate departments for any purpose and in determining whether they shall be independently or jointly operated and supervised are found to be (1) the size of the business, and (2) the volume of work required to be handled by a subdivision. Both of these are influenced by (*a*) the kind of business, (*b*) the nature of the business, (*c*) the character of the goods handled (value, damageability, perishability), and (*d*) the character and tonnage of the traffic to be moved (less-than-carload or carload, heavy or lightweight goods, bulk or standard packages).

An experienced trade association executive contributes the following thought in this regard:

> Concerning the size of a firm for which we would recommend an individual traffic department, this is rather a hard question to answer. However, we feel that a traffic department can give a selling organization so much help in the distribution of the manufactured product that the matter of traffic should receive the same consideration as advertising, and an equal appropriation. We believe that a company doing a gross business of $100,000 per annum in sales should maintain a traffic department, unless they are satisfied with that volume and their business is confined to a near-by trading area where competition can be met without the cost of distribution becoming a factor.

The traffic director of one of the largest companies in the country, who has been in its employ for over 40 years, amplifies this idea:

> It is difficult to lay down a rule as to how large a business should be to operate a traffic department. Some concerns which sell commodities based on the freight rate need a good rate expert even though their business is small, but it is not necessary for the modest company to have an expensive layout.

In concluding this necessarily brief consideration of the relation of the size of a business to traffic administration one fact can well be repeated: It is in small concerns that the purposes, value, and accomplishments possible from traffic administration most often are not appreciated. The need of a shipping room is seen, but the necessity for handling the mental functions—rate adjustments, classification analysis, routing options, rate basis, etc.—is not always recognized. Perhaps these matters have never been presented in the right way.

CHAPTER X

RESULTS FROM INTERDEPARTMENTAL COOPERATION

One of the causes of industrial waste is failure to appreciate fully how traffic management can be made to serve. When an executive discovers that the work of his traffic department dovetails with the activities of practically every other branch of his business he is in a position to reap the proper rewards from traffic administration, or, as one concern phrases it:

> The existence of the traffic department is warranted by the benefits which accrue to the company maintaining it. The policy of the company having a traffic department should be to use that traffic department to the fullest extent.

A traffic department has sometimes been referred to as a central service station, in that it renders service to each of the other departments. But cooperation works both ways. To obtain maximum assistance from a traffic organization, not only is it necessary that the traffic personnel cooperate with the personnel of the other departments but that the latter cooperate in return. Cooperation usually begins with understanding. The personnel of a firm must know how traffic activities fit in with the functioning of their own specific work and how their activities in turn may assist the administration of traffic.

THE VALUE OF INTERDEPARTMENTAL COOPERATION

It is generally recognized that a complete dovetailing of work as handled by the various departments is necessary for the greatest success in any business enterprise. When each specialized staff clears pertinent information concerning its work to the other departments, good results are had. This is known as cooperation, another term for "teamwork."

The best that is in a field of work is forthcoming with interdepartmental coordination. A traffic department working single-handed can usually show its value in services and money returns; but such accomplishments may represent only a small part of its full usefulness. On this point a highly successful chain-store company states:

> The relations of a traffic department to other departments of a business organization should be governed by the principle of cooperation in order to function to anywhere near the possibilities. Both the buyer of raw material and the sales department should cooperate very closely with the traffic department for the reason that a buyer would not be competent to determine where to purchase raw material if he did not know the transportation cost. The same would apply to the sales department to determine the price of merchandise at the point of distribution or consumption.

When other departments undertake a traffic activity that can be handled satisfactorily only by experts, waste is likely to result. A grain producer and shipper quite fully sums up the situation:

> Those who are not familiar with transportation matters and have not made a study of the rates, rules, and regulations governing, get the idea that the handling of every shipment is alike. They fail to realize that each and every shipment is different, like the circumstances surrounding each suit in a court of law. They feel that because something is true of one shipment when moving from one point it automatically is true of a shipment from another point; they take far too many things for granted, instead of seeking the advice of one who makes a study of freight rates, rules, and regulations. The greatest waste comes from a lack of cooperation with those who are familiar with traffic matters.

RESULTS IN SAVINGS AND THE ELIMINATION OF WASTE

The great value of interdepartmental cooperation comes from the many savings that result. Waste is reduced only by a willingness and an understanding of the opportunity and need on the part of every employee to work with every other employee. As one traffic man briefly puts it: "The traffic department should cooperate and coordinate closely with every department, as it can advise and suggest to each of the departments and save a tremendous amount of money." From a large manufacturer of cork products comes a similar statement:

> By a close contact between the shipping and the traffic departments, many thousands of dollars can be saved, through proper routing, consolidation of freight, use of ferry-cars as compared with trucking, and the making of traffic arrangements with the carriers for acceptance of freight directly from plant instead of delivery to piers and railway stations. Proper dispatching of trucks and the accumulation of full loads, both in and out, save considerable during the course of a year; likewise, keeping the sales department posted as to changes in rates and keeping rates down to a reasonable level.

Of course, savings are possible between the traffic department and subdivisions naturally allied to it, such as independently operated shipping, warehouse, or delivery departments. But waste can also be eliminated by cooperation between the traffic department and departments handling distinctly different phases of business. The relation of traffic work to each of the 11 major subdivisions of business—executive, finance, legal, accounting, office, order, personnel, purchasing, production, advertising, sales—has been studied and hundreds of specific illustrations of waste caused by a lack of cooperation are available. A very few of these are noted in the following discussion.

EXECUTIVE AND TRAFFIC DEPARTMENT RELATIONS

There are many matters that call for cooperation between the traffic and the executive departments. By executive department is meant the group of officers made up of the chairman of the board of directors, the president, vice presidents, secretary, treasurer, general manager, and any others who may be regularly called together to aid in the formulation of operating policies to guide the management. Sometimes the traffic manager is a member of this executive committee. He should be, for his activities are fundamental to the successful operation of the business and almost every policy has its transportation phase.

Few who have not been thrown into close contact with traffic activities realize the extent and intricate nature of traffic work; but, as one automotive-equipment manufacturer believes, traffic angles should be taken into consideration in fixing company policies and making plans:

At a plant of this size each day brings forth new problems to be solved. These are due to the constant changes and new designing of our products, as well as to preparing data on new articles being manufactured for the automobile and airplane enterprises, which, if not taken into consideration from a traffic standpoint, on account of not securing proper rates, classifications, and packing requirements, would represent a large waste.

The proper way to guard against this danger is by placing the traffic manager on the executive board or committee where new plans and policies are talked over. This is illustrated by the following statement:

Our traffic manager is a member of the firm's advisory committee that meets once each week with the president and other executives and administrative officers for discussion and decision of matters relating to the operation of the business and decides policies of general concern to all departments.

TRAFFIC DEPARTMENT AUTHORITY

One of the most important opportunities for cooperation on the part of the executive department is in clothing the traffic department with the necessary jurisdiction over traffic matters. As already said, when other departments handle traffic functions waste may take place. This is illustrated in many ways. An official of a large machine works in Connecticut advises:

It has been my experience that the traffic department, properly managed, can save considerable time, money, and labor by cooperating and suggesting changes that spell greater efficiency. In our particular industry waste due to a lack of cooperation is rather hard to find for the reason that the traffic department has full control of all matters pertaining to transportation via all agencies, including the trucking department. No department, be it purchasing, sales, or service, can arrange for any kind of transportation without referring the matter to the traffic department for approval; the traffic department has the last word as to the necessity for emergency movements, which are the ones that are expensive.

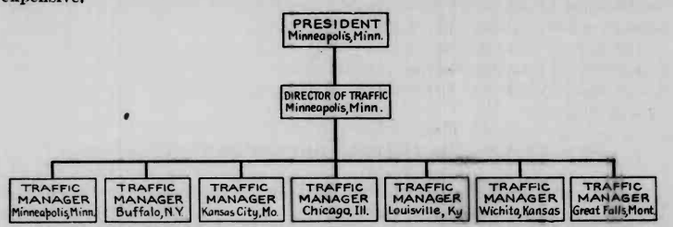

FIGURE 18.—TRAFFIC OF SEVERAL PLANTS CENTRALLY CONTROLLED

Large concerns, with several plants under one control, sometimes have a general traffic manager or director of traffic at their main office, with traffic managers at each branch reporting to him. Such an organization is illustrated by the grain-milling corporation furnishing the above chart. Ten plants, 40 elevators, and 3,200 employees constitute the organization. The company collects about 7,000 claims amounting to over $100,000 annually.

Not only should all main-plant traffic activities be handled by a central department, but branch plants also should look to a general traffic office for instructions.

A manufacturer and distributor of lumber products in the Southwest points to failure on the part of branch plants to consult their general traffic department:

There have been instances, as with practically all industries, of lack of outside plants obtaining information from the traffic department regarding rates, minimum weights, and routes on special commodities classed as "out of the ordinary." This has resulted in the payment of transportation charges in excess of those that would have accrued had the traffic department been consulted.

For example, several carloads of brick were moved from one plant to another, requiring an intrastate haul. The tariff of the carrier provided a commodity rate with minimum weight of 60,000 pounds. The cars were loaded only to 40,000 or 50,000 pounds, resulting in the payment of transportation charges for weight not loaded in the car necessary to make up the minimum.

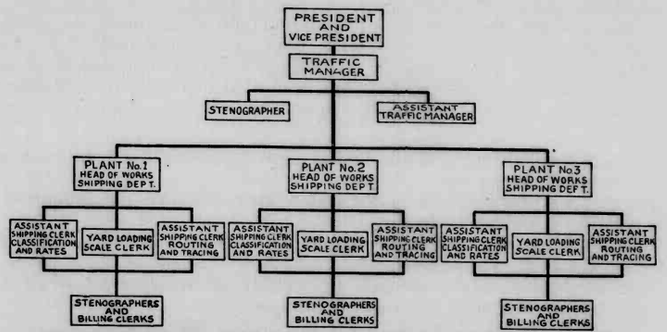

FIGURE 19.—TRAFFIC FUNCTIONS OF THREE PLANTS CENTRALIZED

This large and nationally known manufacturer of boilers employs over 2,500 people, and operates three plants. Although spending nearly $700,000 annually for transportation, only $6,600 of this goes for traffic administration. Traffic administrative, service, cost, and physical-handling functions are all centralized under the traffic department for direct supervision; and the traffic manager looks after the combined shipments for the three separate plants, in each of which a "head of works shipping department" is in immediate control and reports to him.

Traffic departments, once they are created and clothed with adequate authority, must then be properly supported. While financial backing is always recognized as necessary, moral support is not. Typical of hundreds of statements to this effect is the following:

The purchasing department persisted for a time in sending out purchase orders without routing, with the result that cars arrived 7 and 8 miles away from our warehouse, causing delay in receipt of the goods and much more hauling expense. It was necessary to secure an order from the president to finally eliminate this wasteful practice.

ADJUSTING PRODUCTION AND MARKETING TO TRAFFIC

So vital is traffic and transportation to the successful operation of certain businesses that their executive committees fit production plans and distribution to accord with traffic matters, instead of ignoring transportation and perhaps being required to readjust activi-

ties later to meet the traffic necessity. By taking traffic into consideration in determining policies, wastes are reported to have been eliminated by one firm:

(*a*) By securing an adjustment in freight rates so that the company is placed on as favorable a basis of rates as any competing company;
(*b*) By enabling the company to serve as large an area or territory as the geographical location of its place of business will permit, after taking into consideration transportation costs and the rates which other competitors or competing lines of business may enjoy into the same territory; and
(*c*) By the location of plants, warehouses, and distributing centers at strategic points with reference to the territory to be served.

PLANT LOCATION

Any concern that fails to call upon its traffic department for assistance when choosing the site for a plant or branch factory or the point at which goods shall be concentrated for distribution is gambling with this problem. This has been mentioned above. Another illustration comes from a glass manufacturer who reports wastes due to:

(*a*) Failure to consult traffic department when establishing warehouses;
(*b*) Failure to consider the traffic phase when planning marketing activities;
(*c*) Allowing rate equalizations claimed by customers without verifying them; and
(*d*) Failure to handle rate and classification adjustments properly when they were disadvantageous.

Sometimes it may be found better, from a transportation-cost standpoint, to enlarge an existing plant than to build a branch. A Buffalo company reports:

> By enlarging our present plant and thus eliminating the double and triple handling of merchandise and the warehousing of goods at other plants, waste has been eliminated. This also enables us to consolidate more less-than-carload orders into carload shipments.

FINANCE AND TRAFFIC DEPARTMENT RELATIONS

Cooperation between the finance department and the traffic department has to do with a dozen or more matters, among them new financing, budgeting, insurance, invoices, credits, collections, making of payments, audit of transportation bills, audit of transportation items on invoices, determination of freight allowances, security bonds, and the disposition of money received.

FINANCING

A well-organized business is recognized as a safe one in which to invest money. A well-managed concern is usually prosperous. When it is necessary to secure a bank loan or new capital by the sale of stocks and bonds, it is easier for concerns having well-established

traffic departments to finance themselves than for companies without traffic administration. Banking houses investigate the history, organization, management, earnings, valuation, and other pertinent items concerning business institutions calling upon them for financing. Traffic departments that are able to protect their concern's competitive position, avoid claims and losses, secure necessary rate and tariff adjustments and privileges, and in other ways prevent waste, quite naturally are able to make it easier for the treasurer when it comes to financing.

BUDGETING

Different concerns report their traffic departments cooperating with their comptrollers or treasurers in the preparation of budgets covering expenditures for transportation. Transportation expenses range from 25 to 30 per cent of total expenditures in the average industry. Budgets are not particularly useful when such a large proportion of expenditure is "guessed at." Only a specialist devoting all his attention to transportation matters can advise with any degree of accuracy what the transportation costs of a business will be for a coming period. A traffic executive is necessary for this cooperative service.

INSURANCE AND BONDS

Insurance.—Goods in transit and stored in warehouses are subject to hazards outside the control of any management. Protection is obtained through insurance arranged by the official in charge of storage and transportation. Likewise, transportation and storage facilities must be protected. Vessels, cars, trucks, warehouses, and other facilities under the supervision of the traffic department are left to its protection. Traffic managers report cooperating by "insuring all cars and trucks"; "handling marine insurance"; "handling fleet insurance on autos"; "insuring export shipments"; "placing insurance for cargo and vessel hulls"; "preparing statements for blanket-policy debits"; "covering goods stored and warehouses with insurance"; and "insuring in and out bound rail, freight, express, and parcel-post shipments."

Surety bonds.—The traffic department arranges to take out, and later to cancel, bonds to protect the carriers or the Government against losses due to failure to produce negotiable documents or to pay duties or freight when securing the release of goods. Documents frequently are lost or delayed. Import shipments transported into the interior or into a warehouse or factory without being "entered for consumption" are subject to bonding. Since the traffic department is in charge of transportation and storage, it is called upon to arrange surety bonds.

CREDITS AND COLLECTIONS

Credits.—Evidences of traffic cooperation in the matter of credit arrange themselves into several groups. A large manufacturer of boilers reports: "The credit manager is passed the actual shipping dates, to enable a final check to be made on credits about 10 days prior to final shipping release." This protects a firm from losses through change in the credit situation of a customer between the

dates on which contracts are received and the dates on which the goods are shipped. Various shippers report "advising shipping dates prior to credit release"; others assure the "credit department that no shipment shall move without credit approval first being obtained."

Sometimes the credit of customers fails after goods are forwarded and before they are delivered. In such cases shipments are ordered "diverted, reconsigned, or returned." Another service reported in relation to credit is "tracing delivery of shipments on open accounts." The traffic department also advises the credit department of merchandise on hand at destination uncalled for or undelivered, when shipped on a C. O. D. or sight-draft basis, and in return requests the credit department to furnish disposition instructions.

Other forms of traffic and credit cooperation reported consist in "checking credit information prior to shipment," "arranging credit matters on foreign shipments," and in "handling some credit correspondence."

Collections.—Assistance is also rendered the financial end of business enterprises by traffic departments in collection matters. Besides assisting in the use of drafts for collection purposes, other shippers report: "Cooperating in the collection of accounts with railroads" and "cooperating with collection department by establishing delivery of shipments which consignees claim have not been received."

Various statements by traffic departments are to the effect that they cooperate by "handling all C. O. D's with carriers," by "following up and collecting disputed and outstanding C. O. D. items," "assisting in establishing delivery on certain shipments to insure collection of certain doubtful accounts," and by "proving delivery of merchandise on unpaid bills and delinquent invoices."

AUDITING

Auditing invoices.—Transportation items on invoices covering merchandise purchased are checked and approved or disapproved by the traffic department prior to settlement. Traffic departments also prepare debit items against suppliers to cover losses accruing from shippers' error. Likewise, the invoices prepared for customers are checked by the traffic department in order that the firm may be protected against errors in figuring transportation allowances to be deducted.

Customers are permitted, under certain bills of sale, to deduct the cost of transportation from their invoices. Sometimes they are allowed to deduct only a portion of the freight charge, in order to equalize the cost of the goods delivered to them with the price quoted from a competing point. At other times they deduct for icing, demurrage, storage, diversion, or other transportation charges which may or may not be allowed. Traffic departments protect their companies by passing upon the propriety of such allowances or deductions.

Auditing transportation bills.—Checks are not prepared for transportation companies until the traffic department has audited and approved the bills submitted. Very frequently undercharges and overcharges are discovered. It is a necessary and good policy to

make settlement promptly for the correct amount. Consequently, a notice of undercharges or a memorandum showing reason for overcharges is furnished the carrier when the bills are paid. If discovered after settlement has been made, a claim for overcharges is prepared, filed, followed up, and disposed of by the traffic department. Balance-due bills from the carriers are likewise audited and approved or rejected prior to settlement.

RECEIVING MONEY

The traffic department receives checks from various sources; overcharges are collected from the carriers, loss and damage claims are paid by the carriers, settlements are made by insurance companies, refunds on unused passenger tickets are received, reparation is sometimes ordered by official regulatory commissions, and the sale of waste, refuse, old containers, and even salvaged goods may also result in money receipts by the traffic department. These remittances, together with memoranda showing their source, are turned over to the company treasurer and the various accounts are credited by him. A single year's money receipts by one concern showed the following amounts and sources:

Collected from carriers:	
Overcharge claims	$17,293
Loss and damage claims	126,127
Ticket refunds	1,180
Credit from shippers:	
Disregard of shipping directions	38,917
Freight allowances	13,266
Short and damage claims	43,028
Returned goods	5,089
Insurance, marine	12,201
Miscellaneous	2,316
Total	259,417

LEGAL AND TRAFFIC DEPARTMENT RELATIONS

The nature of the cooperation between the legal and the traffic departments in any company depends upon the policies of the company regarding traffic law matters, the organization arrangements for handling legal matters of a traffic character, and the occasions offered for such service.

In some companies the traffic department has no authority to handle legal matters, even those of a traffic nature. When traffic law work is not handled by the traffic department, shippers report such matters taken care of by the legal department, outside attorneys, outside special commerce attorneys, and outside traffic bureaus of one kind or another.

In certain organizations the traffic department cooperates with whoever is assigned the task. In fact, a traffic department is of almost indispensable value in handling legal work such as rate cases and loss and damage suits.

In still other companies traffic departments are given complete authority to look after all traffic law matters and are held responsible for results.

CHARACTER OF TRAFFIC LAW ACTIVITIES

Work of a traffic law nature, as reported by shippers, can be classified as having to do with contracts, rate cases, service cases, court cases, and legislative matters.

Contract matters are the most common. The character of transportation contracts is illustrated by bills of lading, express receipts, sidetrack agreements, weighing agreements, average demurrage agreements, credit agreements, trap-car agreements, private-car and equipment leases, warehouse space, trucking, ocean space, marine and hull insurance, warehouse and truck insurance, and the transportation matters in all purchase and sales contracts.

Rate cases are of primary importance. They are handled before the carriers, freight rate-making and classification committees, State and Federal commissions, and public-utility boards. Rate cases are designed to secure new or revised rates, ratings, routes, rules, or regulations, or to prevent readjustments of them; to recover overcharges, on special dockets; or to recover reparation amounts.

Service cases are conducted before the same parties as are rate cases, but are intended to secure, readjust, or protect arrangements having to do with car service, switching, train service, lighterage, trucking, interchange, store-door delivery, container cars, claim payments, merchandise cars, and other such matters.

Court cases relate to loss, damage, and delay claims made by shippers against carriers; also cases of accident liability in connection with the operation of the firm's transportation equipment—automobiles and trucks, cars, locomotives, vessels, and materials-handling facilities.

Legislative matters relate to the support or condemnation of proposed bills before municipal, State, and Federal bodies. Shippers define such activities in various ways: "The traffic manager watches developments of a legal or legislative nature"; "We keep close check on all cases before courts and commissions"; "We carefully review all Interstate Commerce Commission decisions relating to articles liable to compete with our products."

HOW COOPERATION IS RENDERED

Service of a legal nature is rendered firms by their traffic departments in many ways. In the matter of contracts, documents are drawn up, entered into, or passed upon. Agreements and contracts prepared by others are examined and suggestions are offered that changes be made, terms be revised, or that the lease, contract, or other legal documents be agreed to. This is appropriately illustrated by a Wisconsin traffic manager, who says:

> On checking the contract with a coal operator I found the coal was purchased f. o. b. a certain mine. I then went through all of the freight bills covering cars that were so shipped to us and found that we had paid over $6,000 in excess freight charges due to the coal operator's error. We were successful in getting this money back from the coal operator and immediately arranged with our purchasing department to keep us posted on all contracts.

In rate-case matters the traffic department may handle every step—detect causes for action, investigate basis for complaint, collect facts concerning the matter in question, bring the situation to the attention of the executives or legal department, discuss the firm's policy in connection with proposed action, prepare complaints, file answers and intervention petitions, write briefs, attend hearings, present cases, act as expert witness, take part in oral arguments, and handle all other phases connected with such cases.

When it comes to court cases, the traffic department recommends outside attorneys and cooperates with them by furnishing technical information and evidence. This is illustrated by a wholesale drug company that points to assistance rendered "by furnishing legal proof of deliveries as preliminary to or in the course of legal proceedings against customers for collection purposes."

In legislative matters the traffic manager appears before legislative committees as a witness and assists councilmen, legislators, Congressmen, and Government executives in learning the facts and the views of shippers concerning proposed measures.

When outsiders are engaged to handle traffic matters the traffic department is not idle. A copper company reports:

> It is our present practice to secure the aid of specialists—for instance, a commerce counsel—to prosecute formal complaints before the Interstate Commerce Commission or State regulating commission. Such assistance is usually confined to formal pleadings, briefs, and arguments. The preliminary statistical work and the presentation of evidence is done directly by the traffic department employees.
>
> This outside assistance is under the jurisdiction of the traffic manager, and the plan has been found to be advantageous as compared with the handling of such cases by the regular legal department.

ACCOUNTING AND TRAFFIC DEPARTMENT RELATIONS

While the auditing of transportation bills and the transportation items on merchandise invoices is by far the most significant work of an accounting nature handled by the traffic department, there are many other matters worthy of mention. Traffic departments also cooperate by furnishing the accounting departments with various kinds of information; by preparing documents, records, reports, statistics, and statements; by keeping certain accounts and suggesting methods in connection with general accounting practices; by handling claims; by helping in taking inventories; and in handling other closely related matters. Illustrations of these varied activities follow.

FURNISHING INFORMATION

The traffic department provides the accounting department with data concerning orders, weights of shipments, movements of goods, claims, discounts, transportation costs, and allowances to be made customers for transportation. Most of the information pertains to costs and allowances and comprises, among many other items, information on "weights of light cars, less-than-carload shipments, and shipments in transit"; reports on "movement of stocks of finished products and of shipments refused and returned" and on "methods of preparing claims, by branches"; information "to facilitate handling bills payable to take advantage of cash discounts" and to "check quantity discounts"; and data on "inbound commodities and cost" and "on landed freight cost—per dozen—to determine price on import shipments."

3864°—30——10

Concerning allowances, information is furnished "verifying outbound rate for establishing of prices" and "on questions of transportation allowances for accounting studies and surveys"; "on customers' invoices, for goods sold f. o. b. plant"; "on customers' freight allowance and debits"; and "to invoice department in regard to amount of freight to charge customers on prepaid shipments." Traffic departments also report "issuing all transportation credits"; "furnishing rates and charges on freight allowances"; "calculating freight equalizations and absorptions"; "fixing allowances and issuing debit and credit memoranda"; "issuing credit on returned material"; "checking freight allowances"; "advising regarding freight allowances"; "determining allowances to be made customers"; and "adjusting transportation allowances with customers."

PREPARING DOCUMENTS, REPORTS, AND STATISTICS

The accounting department, and others as well, are served by the various documents, records, reports, statements, statistics, exhibits, and general data pertaining to transportation furnished by the traffic department. Representative of the various documents prepared are bills of lading, negotiable warehouse receipts and ladings, drafts, invoices, vouchers, applications, affidavits, receipts, claim papers, and customers' papers. Shippers advise keeping the following records helpful to the accounting department: Branch traffic, free of suspense item; carloads, in and out bound; cars, in and out bound; bills of lading received and forwarded; freight bills; less-than-carload, carload, express, and parcel-post shipments received and forwarded.

Among the various reports and statements furnished are: Savings due to traffic department activity; money received from carriers on reparation, loss, damage, and delay and overcharge claims; freight, express, and parcel-post shipments and receipts; comparative claim situation; monthly and annual activities and accomplishments; moneys received from shippers and customers as allowances or deductions for freight; marine insurance, as required under blanket policy; transportation figures for budgets; distribution of shipments; mileage earnings on tank cars in railroad service; information to prevent duplicate payments; freight adjustments to be reached.

Statistics and exhibits for various uses are also prepared to cover freight and express tonnage for annual reports, and rate case evidence—maps, graphs, charts, and tabulations.

KEEPING ACCOUNTS

Traffic departments actually keep accounts of certain kinds. These are reported as claim accounts, transit accounts, warehouse accounts, freight accounts, and general traffic accounting.

Accounting work is reported handled by some traffic departments in connection with the "distribution of freight charges paid," "passenger matters in the profit-and-loss account," and in "debiting shippers with transportation charges, if purchasing f. o. b. destination and shipped to us collect." Other illustrations furnished to show how traffic departments assist in keeping accounts comprised: "Segregating transportation expenses on all invoices covering materials purchased"; "distributing of transportation costs to proper commodity accounts"; "distributing of freight and express costs to the 18 merchandise and sales departments"; "distributing and classifying of transportation expense items (charged) to various and proper cost accounts (freight, express, parcel post, labor, etc.)"; "distributing transportation vouchers"; "indicating the accounts to which transportation expenses should be charged; for branch offices, also"; "handling all credit memoranda in order that proper amounts are received and credited against proper customers"; "directing manner in which transit account is to be handled"; "classifying freight and express bills"; "specifying account to be charged on books"; "establishing a fixed billing basis of monetary advantage"; and "suggesting methods as to proper handling of accounts."

As an illustration of how traffic cooperation in keeping accounts may be made to yield savings a Toledo manufacturer reports:

> In the event freight allowances are made, the routine (double check) permits the making of the proper allowance immediately, thus saving journal entries later. If, for example, the entire freight is allowed on a car and the car goes forward collect, it invariably works out that the transportation charge on the destination freight bill jibes to the exact cent with the freight allowance made on the invoice.
>
> Our system has the effect of automatically bringing errors to light, although a recheck is made of all transportation costs.

AUDITING BILLS AND INVOICES

As has been stated, the most frequently cited illustration of waste and savings, on matters relating to accounting, has to do with the audit of bills and invoices. The actual amount saved by auditing transportation bills usually is not known because the bills are corrected before payment and no record is made of the errors detected.

A manufacturer of soap in New York City makes it a practice to have "freight bills carefully checked for errors in extension, weight, and freight rate." In the opinion of a Missouri dry-goods company, "the traffic department proves a big asset by auditing all freight bills and express shipments before paying."

Sometimes the carriers prevent undercharge bills, and a Cincinnati fruit and vegetable distributor advises:

> Among the duties of the traffic department not enumerated on your questionnaire is that of verifying due bills received from the carriers subsequent to the original payment of freight charges.

Since suppliers are just as likely as not to operate without traffic departments one reporter explains how wastes from that source are stopped:

> Very few of the manufacturing companies that we buy from have organized traffic departments. The result is we discover, when auditing our freight bills, many errors in freight due to shipper's negligence in billing or to not following classification rules. These errors we charge to the shipper, and with the debit we send a letter explaining the reason. This enables the concern to check up the correctness of our charge and instruct their own shipping departments accordingly.
>
> This is service that benefits the shipper but does not show up to our credit at all.

Receivers also are often unacquainted with traffic matters. Some shippers help their customers in the following way:

> Previous to this time we had no accurate check of our packing and shipping departments in regard to description of freight shipments. Now, at periodical times, we request a number of our customers to send in their freight bills for auditing, and by making a careful check of these bills against the original orders we are assured that our customers receive the benefit of lowest classification descriptions. When the system was inaugurated many irregularities were found that are now practically eliminated; and, further, the system represents the elimination of considerable waste, as the average country or small-town merchant pays very little attention, if any, to his freight costs.

All that has been said so far has had to do with the audit of transportation bills, covering freight, express, parcel post, passenger, traveling of road men, special services, car repairs, telegraph, trucking, and similar matters of expense. Waste due to a lack of cooperation between the traffic and accounting departments also accrues from failure to check the transportation items on merchandise invoices. As a large Bridgeport industry points out:

> Failure of the accounting department to have all transportation bills, allowances, etc., checked by the traffic department will always result in additional expense, as they formerly did with us.

One of the country's best-organized traffic departments furnished a detailed statement showing the number of purchase invoices audited, the amount of money debited or credited to suppliers due to errors detected on these invoices, and the savings resulting as compared with sums recovered from carriers by auditing transportation bills, and in a covering letter said:

> Attached you will find report for the year of debit memoranda filed and deducted for excess charges paid by the stores by reason of shipments being forwarded in violation of shipping directions. The total amount recovered from shippers, $14,300, represents an increase of 57 per cent over the previous year. Of this total, $902 represents the proportion recovered due to errors in parcel-post shipments, $9,666 the excess recovered on express shipments that should have been forwarded freight, and $3,661 for violation of freight routings and classification requirements.
>
> In addition to these figures, you will note the report shows a total of $3,983 in overcharge claims paid by the carriers. The $18,212 represents the total monetary results derived from the traffic division's audit of invoices during the fiscal year.
>
> While it is true that invoices are constantly increasing, due to the opening of new stores, it is also true that violations of shipping directions are becoming increasingly hard to find. The majority of our shippers are now aware that shipping directions are issued to them for the purpose of being followed. Often one debit memorandum is sufficient to advise them of this fact. I believe that, without exaggeration, our policy of auditing invoices and debiting shippers for violations really saves in transportation costs three times the amount actually recovered, due entirely to the fact that our debit memoranda serve notice on our shippers that a close check is being kept on their method of shipment. Aside from this point, the actual amount received presents ample indication of the importance of maintaining our present policy.

Waste has been eliminated by other firms in connection with invoices through "checking freight deductions," "checking rate allowances before payment of invoices," "checking rates on delayed shipments," "checking all invoices for both price and freight differential," "showing transportation charges on all f. o. b. destination sales," "auditing when freight was allowed dealers," "handling all debits or credits when transportation is a factor," "deducting allowances when shipper or accounting department has overlooked giving same," "allowances approved or disapproved," "calculating freight on cash-discount invoices," "deducting freight on delivered shipments," "checking selling agents' terms," "checking equalizations on all bills," "checking customers' requests for credit allowances on shipments to prevent duplicate payment of freight charges," "checking where deductions have been or have not been made by customers," "approving customers' deductions for freight on remittances received," "avoiding sending duplicate bills to customers," "auditing customers' remittances for freight deductions," and "triple auditing of everything pertaining to transportation."

MISCELLANEOUS MATTERS

Some traffic departments report "taking inventory" or "assisting in inventory-taking periods" as functions performed by them. Traffic can be handled and records kept concerning it in such a manner as to be of great service to the accounting department when it is called upon to show the amount of stock on hand. In this connection shippers report "maintaining a system of handling shipping papers, such as bills of lading, that enables proper check to be made of shipments, and to insure the prompt forwarding of full information regarding shipments to customers," and "handling in-transit shipments to facilitate taking of inventories."

The traffic department assists the accounting department in various other ways. When the latter is in charge of insurance, the traffic department is reported as assisting in the "handling of general average adjustments on ocean movements" and by "figuring marine insurance"; when responsible for credit and collections, by "providing delivery record of merchandise on unpaid bills or on outstanding old accounts," "handling details on accounts payable," "handling all details pertaining to traffic matters affecting the payment of accounts," and "arranging credit accounts with carriers."

Sometimes the accounting department is responsible for foreign payments and the traffic department cooperates by "keeping in touch with the rate of exchange," "figuring customs-duty charges on imports" and "handling foreign drafts with documents attached."

OFFICE AND TRAFFIC DEPARTMENT RELATIONS

In many business organizations the general office is in charge of a variety of activities of a more or less general administrative service nature. It takes care of correspondence; typing; filing; clerical and stenographic work; pay rolls; office supplies; paper work; reports; telephone, telegraph, and messenger service; mail; visitors; and many other matters.

The traffic department, like the others, is served by the office department and is in a position to cooperate in various ways; shippers have cited the "handling of correspondence," "filing shipping records," "making up the weekly pay rolls," "handling matters connected with orders," "assisting in handling the general office work," and "assisting the office manager."

ORDER AND TRAFFIC DEPARTMENT RELATIONS

It is in the matter of orders that the greatest cooperation seems to be rendered, in connection with which the following services are said to be performed by the traffic departments of various companies: "Handling of foreign orders," "controlling routing movement of orders," "routing orders and tracing purchase orders," "cooperating to insure proper shipping," "suggesting changes in order forms, etc., to help expedite or simplify the handling of freight," "suggesting methods of speeding up orders," "handling orders and other correspondence relating to delay in shipping orders and forwarding," "preparing monthly list of unfilled orders," and "keeping order department informed of proper shipping point."

Without traffic assistance losses would sometimes result from sending duplicate orders. A large Massachusetts industry reports: "Order departments have tried to trace shipments and have forwarded duplicate shipments when traffic department could have handled matter to better advantage."

When trouble develops in making delivery the traffic department of a footwear manufacturer gives assistance through "cooperation with sales and order departments by inducing consignees to accept refused and unclaimed shipments."

After the goods are delivered the traffic department of a Boston construction company cooperates by checking contracts to avoid "losses by failure to properly hold vendors of raw materials to contract terms as regards f. o. b. point, etc."

PERSONNEL AND TRAFFIC DEPARTMENT RELATIONS

Every business has personnel and employee relations of various kinds which require administration. Traffic departments report being of service in such matters. The nature of this assistance for the most part has to do with passenger travel.

Nevertheless, in one firm the traffic department reports "cooperating in safety and welfare work." In another, the traffic department "instructs employees of the other departments regarding the ways in which the traffic department can cooperate with them." One traffic manager advises "furnishing transportation facilities for patients, doctors, and nurses for hospital work, and for a man to investigate absentees." "Providing passenger transportation service for all visitors" and "securing transportation service for friends of the company" are noteworthy public-relation activities also mentioned.

OFFICIAL-BUSINESS SERVICE

Many thousands of dollars are spent by individual concerns for passenger transportation. Modern organizations are inclined to pass the purchase of passenger service over to experts, as they have their freight service, knowing that in so doing they obtain better service at lower costs and waste the least possible time in so doing. The following specific examples of passenger work are cited by traffic departments: "Routing passengers"; "routing salesmen"; "planning business trips for executives"; "preparing itineraries for business trips of employees and officials"; "checking quickest routes"; "advising concerning railroad time and transportation service"; "securing private cars and trains"; "quoting passenger fares and schedules"; "making reservations for space"; "purchasing all tickets"; "auditing traveling items on the expense accounts of road men"; "making claims for damages and overcharge on household goods moved for employees"; "collecting claims for ticket refunds for unused fares and reservations"; and "protecting against excess baggage charges."

When it comes to business conventions the traffic department cooperates by "handling convention details," "arranging transportation incident to jobbers' and salesmen's conventions," and "notifying officials of special rates in order that business trips may be made to the best advantage."

The automobile and even the airplane have added to the traffic manager's activities. Concerns report their traffic departments active regarding the parking arrangements for automobiles, the provision of automobiles for official use, and the substitution of automobiles for trains by salesmen. Some companies arrange streetcar, train, and bus service to and from their works for employees.

For business organizations, such as Chautauqua circuits, operas, symphony orchestras, circuses, and motion-picture location-party movements, passenger-traffic management is an important factor in their financial success.

PURCHASING AND TRAFFIC DEPARTMENT RELATIONS

There are four things that must be purchased in large quantities by typical business institutions, namely, money, labor, commodities, and transportation services. While the relative importance of each of these varies with the different kinds and phases of business activity, the purchase of transportation services—including storage and communication—is by no means the least important. In many respects it is the most complicated purchasing activity although frequently treated with the least concern.

The purchase of commodities and the services incident to their being moved and held prior to being converted into other articles or transferred to new owners frequently are combined. Joint purchasing agents and traffic managers are not uncommon. In small concerns this is perhaps necessary and even advisable, but it is believed the better organization policy to maintain distinct and separate administration over each of these important functions whenever sufficient business warrants; and as has already been pointed out, by centralizing—bringing together under one head—all of the closely related functions of a traffic and transportation nature, often sufficient work is found in concerns that did not seem to provide it to justify independent traffic management.

The relations of traffic to purchasing are encountered in advance of placing purchasing orders for goods, when ordering, during the inbound movement, upon receipt of the goods, and following their disposition.

BEFORE PURCHASING ORDERS ARE PLACED

When assistance is sought by the purchasing department, the traffic department must be prepared to render it. This involves carrying on research, keeping informed of current developments and changes, analyzing conditions, maintaining records, and planning and scheduling the best ways of handling goods ordered.

Research.—Traffic research beneficial to the purchasing of goods pertains to various matters, among which may be mentioned the location of new sources of supply, the widening of purchasing territory by securing new rates, analysis of the competitive rate situation, and plant location or expansion. (The last mentioned was discussed in connection with traffic-executive relations, p. 132.) A large chain-store organization reports:

While practically impossible to estimate the saving made by cooperation with the buyers, there is little doubt but what the economies effected will amount to several thousand dollars. It is safe to say that at least half of one man's time is now devoted to compiling information for the purchasing departments. Numerous items which a year ago were bought from one manufacturer are now being purchased from two or three sources in different sections of the country. The stores are instructed to order from the nearest shipping point. This has many times resulted in a profit being made on an item which formerly was sold at a loss.

A Kansas grain-milling concern points out:

By advising the purchasing department just where to buy wheat for use on export shipments the firm has been able to save from 4 to 7 cents per hundred pounds on flour shipped for export.

Also, by buying wheat in certain territories recommended by the traffic department the firm has been able to save from 2 to 14 cents per hundred on domestic shipments.

An Indiana woolen-wear mill writes of losses due to—

Changing the source of supply of raw materials without notifying the traffic department and having the rates checked to ascertain whether or not they are out of line with the rates paid by competitors or other communities.

A Wisconsin paper-mill traffic manager reports the following pertinent and interesting case:

Our company uses a good deal of jack pine in the manufacture of our kraft paper. This grade for pulpwood in our immediate vicinity has been cut for a number of years, and with our increasing production we were obliged to look for other territories from which to secure this wood. A very large stand of jack pine was located in the northwestern part of the State. This traffic had to be loaded at points on the rails of a carrier which made the movement interstate through Minnesota, which is a much higher rated territory than Wisconsin on pulpwood. The rates then in effect on this interstate movement were 'way out of line—in fact, almost prohibitive—yet we had to have the jack pine. After making a very close study of rates from other territories and the routes via which those rates applied, we found an unusually low basis on which combination rates could be justified and made. * * *

At the time we estimated that this saving would amount to $81,000 on the tonnage involved, but it is quite apparent that our estimate was low, in that there is a good deal more tonnage available than we had supposed.

Current developments.—Traffic departments must keep informed of current developments and prospective changes. By advance information as to changes in rates, shipments may be ordered held up or rushed forward, depending upon the nature of the change. A chain-store company illustrates the use of advance information in the following way:

Upon information furnished our buyer by wire while in St. Louis he was able to obtain a reduction of one-half cent on inner tubes. Based on sales of 180,000 tubes during 1926, this reduction will result in a saving of $900.

Records.—Records are maintained which are referred to for the purpose of determining the proper level at which stocks should be maintained, the amount and kind to carry in stock, and the amounts on hand, in transit, and to order. A fuel company makes the following statement on this matter:

The maintenance of daily coal situation reports are of material advantage to the general purchasing agent in buying coal and regulating shipments to the extent that equal daily deliveries are insured, avoiding congestion in our yards, which proved so costly to us in the past in demurrage charges and extra labor.

Traffic records assist in determining the size of the order to be placed. Waste results from purchasing too much or too little. An Illinois manufacturer of medicines and toilet articles points out:

A large waste has been eliminated by inducing the purchasing department to increase the size of the purchase orders. Where former shipments of 15,000 or 20,000 pounds were purchased, which would be less than the minimum carload, and either the less-than-carload or the minimum-weight and carload rate was assessed, this has been corrected so that at least minimum carload is purchased.

A rubber-tire factory explains:

Many instances of industrial waste are prevented in our business by the purchasing of sufficient quantities to enable shipment in carload lots. We have found that original purchase orders were issued for small quantities to last but a short time and for which the less-than-carload freight rate would apply, while the purchase of a larger quantity would enable us to get the benefit of the carload freight rate. The difference between the less-than-carload freight charges and the carload freight charges amounted to as much as $100 per shipment. By this method of purchasing we are in some instances able to secure lower prices.

A perfume manufacturer cut waste incident to small orders in the following manner:

Empty sample tins were being purchased in large quantities and being shipped in small local shipments; facilities for storage were arranged whereby carload shipments could be made by the manufacturer. Also on shipments of medicinal white oil, where shipments were formerly made in 10-barrel lots, storage facilities were arranged and shipments are now being received in carloads, on which quantities the shipper agrees to pay transportation charges.

BEFORE PURCHASES ARE SHIPPED

When placing orders with suppliers and instructing them as to the manner in which delivery is to be made the traffic department cooperates closely with the purchasing agent. Details concerning the preparation, packing, and marking of the order, the containers to use, the invoicing, billing, classification, rate, and routing, and the manner of loading, consolidating, and forwarding are covered by shipping instructions placed with suppliers when purchase orders are given. A firm located in Reading states:

In 1921 the traffic department saved the company over $28,000 on one class of material alone by the advice it gave to the purchasing department as to what had to be done in the way of preparation so that material would move on a certain rate.

An Ohio farm-products marketing organization likewise states:

In cooperation with our production, purchasing, and sales departments, we have effected considerable savings by furnishing information with reference to proper preparation of livestock for shipment; also proper preparation of fruits and vegetables and other perishable commodities.

The preparation of the shipment has to do with its packing and containers. A Massachusetts mill reports that through traffic-department cooperation it has "induced buyers of carload lots to accept paper on skids."

A New York City department store reports:

We investigated out-of-town shipments which arrived with merchandise packed in heavy cases. Our request to the vendors to pack future shipments in lighter containers resulted in great saving of transportation charges.

A very interesting illustration showing the value of traffic packing studies in relation to claim-prevention efforts, is given by a traffic manager connected with a chain-store organization:

In connection with imported tree ornaments: A year ago the carriers made some suggestions for additional or improved packing which we passed along to the buyer, who went into the matter very thoroughly and when abroad made some constructive changes, and all districts were requested to report their experiences with improved packing. When we received the reports, all districts except one reported a considerable improvement, and despite the long hauls to intermountain territory many of the store managers in that territory reported no breakage or breakage so small as not to warrant filing a claim. Some districts did not receive all shipments with the new packing during 1927, but we understand the new packing will be used for all shipments in 1928. Therefore, this year we should know the full results of our efforts to prevent these claims.

We should apply the same principle to any merchandise we buy for which we file an unreasonable number of claims. Our district traffic men should make it a point to inspect the packing of one or more shipments which showed breakage and endeavor to find the cause. In all cases where they believe breakage is due to improper packing, send full information to this office in order that we may, to the extent possible, correct this evil.

Instructions as to the method of marking containers is also pertinent. A certain shipper reports having—

Ordered all our beans put up in bags marked "Certificate 12-ounce railroad bags" to secure fourth class less-than-carload rating instead of third class for unmarked bags, saving great sums in freight charges.

When it comes to billing, routing, and rating, instructions are necessary in many cases. A Chicago house explains its method of keeping the purchasing department informed as to the routes and rates to use, time in transit, and similar matters as follows:

At the present time routings are prepared in duplicate, one set retained by the traffic department and one retained by the purchasing department, showing both the cheapest (and of course the slowest) and the standard fast routings available from each source of supply. This permits the purchasing department to use, practically at all times, routings which will give us the lowest possible freight rates on our commodities; but the faster routes are always available when it is necessary to place rush orders to build up depleted stocks. This coordination between our two departments has become so accurate that the writer was recently advised by our purchasing agent that approximately 99 per cent of our shipments arrive on the date, or within a day of the date, which is set by the traffic department for the arrival of the shipments.

AFTER PURCHASES ARE SHIPPED

Various ways of cooperating with the purchasing department are open to the traffic department after goods have been shipped by

suppliers. Shipments may be traced, expedited, or stopped in transit for loading, unloading, milling, finishing, storing, or a multitude of other things; or the shipments may be reconsigned or diverted to points other than those originally billed.

Purchased merchandise must be received, unloaded, checked, inspected, and distributed to stores, warehouses, departments, or customers. Records are kept relative to these matters. Sometimes claims are filed against the shippers for shortages, damages, or losses due to their not following shipping instructions. At other times the carriers are liable for delayed, damaged, or lost shipments. The traffic department takes care of these matters and renders valuable assistance to the purchasing department by so doing.

ACTUAL PURCHASING OF GOODS

Many independently operated traffic departments are authorized to purchase, assist in the purchase of, or at least requisition the purchase of, merchandise, supplies, and equipment. The merchandise may be procured overseas and be imported, or it may originate in domestic markets. When supplies are purchased by the traffic department they usually relate to transportation and traffic-department operations. Twine, wrapping paper, tags, labels, marking materials, boxes, crates, cans, and bills of lading and other blank forms illustrate such supplies. Transportation equipment purchased outright by the traffic department or in consultation with the purchasing department consists of locomotives, cars, trucks, motor equipment, and vessels and supplies such as fuel and oil.

The traffic manager of a wholesale grocery firm located in Jacksonville points out in this connection:

I have recommended either removable bodies or tractors with 4-wheel trailers, so that the motive power may be kept on the go. The power plant is the most expensive end of the truck and should be kept moving. A trailer standing up under load waiting to be handled is not nearly so expensive as a truck standing up waiting to be unloaded, with its driver idle.

FOREIGN PURCHASES

Importing.—When goods are purchased in foreign countries and imported into this country traffic departments often are called upon to handle not only transportation matters but custom procedures as well. The following statement, taken from the annual report of a traffic department regarding its import activities and showing savings totaling $4,035, is filled with thought-provoking ideas and citations of accomplishment:

The total imports for the year show a marked increase over those for the previous year. We received a total of 9,095 cases and bales this year as compared with 3,912 last year. However, only 2,808 cases and 2,381 bales, or a total of 5,189 in all, were handled through our warehouse; 975 cases were shipped direct from the piers (293 New York, 188 Boston, 365 Baltimore, 129 New Orleans) to the stores; and 2,931 bales of rugs handled through the terminal in Brooklyn. * * *

We have recently been successful in securing a reduction in the freight rate on cocoa mats imported from Belgium from $8 per cubic meter to $3 per cubic meter. Refund has been received to the amount of $219 on two shipments which we brought in at the higher freight rate.

Direct shipments through New York.—Early in the year we arranged with our import truckman to handle direct shipments for the stores where whole-

case lots were ordered. In addition to minimizing the drayage expense this method of handling relieved our warehouse entirely—not only of the actual handling of the cases but of all of the detail. Heretofore all cases were picked up from the piers and delivered to the warehouse (one drayage charge), where they were marked for the various stores and then again hauled to the various piers (a second drayage charge). Under the new management, the cases were picked up by our import truckman, marked, bills of lading made out, and the shipments delivered to the respective piers for forwarding to the stores, at a considerably lower rate than the inbound and outbound drayage rates previously charged. The actual saving in drayage on the 293 cases handled direct from New York piers was $44. An additional $21 was saved by having shipments of Easter baskets marked on the dock by our drayman and shipped direct to the stores.

Direct shipments through "outports."—The year marked our first adventure in shipping import cases direct to our stores. Obviously, considerable time and detail were involved in making arrangements for this handling. It was necessary to arrange with reliable brokers, furnish them detailed instructions as to how shipments should be handled, arrange with the interested carriers at the different ports for reforwarding of the shipments via routes specified by this division, make financial arrangements with the banks for prompt payment of the duty and other amounts, and also instruct our warehouse in detail as to how the invoicing should be taken care of. Complete record of the shipments was kept, entirely relieving the warehouse of all detail but passing the invoice. On a total of 682 cases handled through the three ports mentioned, we estimate a saving of $800. * * *

Brooklyn terminal.—Effective July 1, we arranged for the handling of all shipments of rag rugs through the Brooklyn terminal at the rate of 40 cents per bale for the entire handling, including (1) picking up the shipment, (2) reshipping according to our orders, (3) marking the bales, (4) preparing the bills of lading, (5) delivery to the piers or railroad stations, and (6) storage for one month. For bales remaining in storage longer than a month the charge was to be 9 cents per bale per month. Prior to this arrangement the bales were picked up from piers, usually in Brooklyn, and a trucking rate of from 60 cents to $1 per bale assessed. They were then placed in warehouse stock. As orders were received from the stores the bales were marked in our warehouse and then trucked to a railroad terminal for shipment to the store, for which another 60 cents per bale was charged. At the minimum rate of $1.20 per bale for the inbound and outbound movement—eliminating the labor charge in the warehouse—the saving on the 2,931 bales of rugs handled since last July amounted to $2,345. * * *

Banking.—Complete new arrangements were made with the ——— Trust Co. in New York in connection with our import account. All details and records in connection with this account are maintained in this division. The system has proven entirely satisfactory.

All letters of credit were carefully perused and numerous changes made in the wording to provide for our particular requirements. For example, the letter of credit financing shipments from one company specified c. i. f. terms. Inasmuch as we are in a better position to take care of freight and insurance, we had these terms changed accordingly. * * *

Customs.—Customs work reported as being handled by traffic departments relates to the preparation and filing of entries, paying duties, arranging for surety bonds, securing customs invoices, permits, affidavits, certificates, and other necessary documents; also handling drawbacks for the return of duty paid on imported articles subsequently reexported, handling withdrawals from bonded warehouses or manufacturing plants, arranging for customhouse brokerage and freight-forwarding services and supervising same, securing fire, theft, and marine insurance, chartering steamships, and looking after the hundred and one other details incident to making and delivering foreign purchases.

The following quotation is from the same source as the one just above:

A very careful check is maintained on all copies of entries made out by our broker to see that the merchandise is entered at the proper valuation and classification. In a recent instance we found that a shipment had been valued at $1,000 more than the actual invoice value. The matter was at once called to his attention and handled for refund, which has since been received.

Frequently we have occasion to advise as to the proper description of articles to insure the shipments being entered and cleared at the lowest possible rate of duty. This was done in connection with toy sewing machines and block planes. In each case the shipments received, classified as per our instructions, were entered at considerably reduced rates of duty.

PRODUCTION AND TRAFFIC DEPARTMENT RELATIONS

Traffic and transportation activities are not only used to facilitate manufacturing operations but they are actually an integral part of production operations. Take away the plant-transportation facilities, materials-handling activities, and storage services and production would stop. In present-day large-scale production systems, and even in plants having small outputs, machines are employed that not only "change the form" of the material but move it along, and hence "change the location" of the goods. When storage and movements between machine operations are immediately incident to manufacturing, such operations usually are placed under the supervision of the production department.

The dividing line as to where the traffic department lets go of inbound goods and where it takes over control of outbound merchandise is not the same in all fields of industry nor even in the same kinds of plants in each industry. For example, some traffic departments have jurisdiction over plant transportation, some over assembling for shipment, many over packing and loading; but in other companies these activities are handled by the production or works department.

Traffic is related to production in connection with engineering, planning, designing, and experimenting; determining production costs; tracing and expediting inbound and outbound shipments; controlling materials on hand in stores and in stock; handling materials and the movement of goods at the plant; actual manufacturing; assembling goods for shipping; packing, weighing, loading, and stowing of outbound shipments; expediting outbound movements; distributing goods produced; and disposing of waste resulting from production operations.

ENGINEERING, PLANNING, AND EXPERIMENTING

An Illinois sanitary-ware manufacturer points to traffic activities incident to "cooperating with our engineering department on the feasibility of new products from a transportation standpoint."

A Wisconsin paper mill reports assistance rendered in making it economically possible to test out the worth of certain raw materials. After stating that "last year our company decided to ship in about 25 cars of spruce logs from western Montana for experimental purposes," it goes on to tell how new low commodity rates were obtained to make this possible.

Another middle western firm tells of the designing of an article so that it had to be shipped set up. Not only railroad freight charges but packing-container costs and losses and damages were thus increased. A traffic-department suggestion that a detachable hub cap be used saved the situation.

> Factory placed on the market doll carriages, and, as they were designed to be shipped with wheels on, the company was forced to pay freight charges based on a rating of three times first class. When discovered by the traffic manager the carriages were ordered to be shipped, in the future, with wheels off, resulting in a saving of 50 per cent, as the rating on "doll carriages, wheels off," was one and one-half times first class. This error in shipping came about because the designing, production, and sales departments did not refer the matter to the traffic department.

PRODUCTION COSTS

Few concerns, apparently, know what their transportation bill amounts to; yet in the opinion of a California shipper: "Any man in a plant who figures a bid, including cost of transportation, and does not secure prior advice from his traffic manager, invites loss of the bid and a claim," and a large construction and engineering company with 10 or more plants, reports from its Massachusetts headquarters "large losses through failure of production cost department in figuring production less freight rates, etc."

It would seem advisable not only to segregate transportation costs from manufacturing and other costs, but to keep a close watch on their fluctuation and the reason for changes, and thus attempt to protect the interests of the concern by preventative measures and by intelligent cost estimates.

STORES AND STOCK

The traffic department can naturally be of service to the operating departments in aiding them always to have raw materials in storage, available to be used in production, and in maintaining a reservoir to receive finished goods. Furthermore, by maintaining conservative inventories costs are reduced. To do this it is necessary (1) to regulate the ordering and receiving of materials, (2) to maintain records and inventories, and (3) to handle warehousing and storage at the plant.

To prevent congestion at a plant and to keep down unloading and demurrage charges, a careful scheduling of material requisitions and forwarding instructions is prepared by the traffic department. The movement from sources of supply to the plant also is watched, shipments are traced and are retarded or expedited, depending upon the need in each case. Various concerns report that their traffic departments "assemble orders and arrange other matters pertaining to production," "order heavy raw materials," and "suggest routes to use and on which to base buying schedules." Other shippers tell of "following up shipments to avoid trucking and to speed up orders"; "preventing shutdowns (since 1914) by expediting inbound raw material movement"; "arranging special movement of raw materials in emergency"; "keeping shipments delayed, moving, or expedited, as needed"; "expediting all inbound materials"; and "arranging expeditious handling of emergency shipments."

But it is plant shutdowns due to a lack of coal or materials that have caused the greatest waste. A North Carolina traffic department reports a "tie-up of production on account of delay in transit which could have been prevented." Likewise, a New England soap manufacturer states:

> If the cooperation which exists between the traffic department and other departments were not present, there would be numerous cases of severe industrial waste. Many cases are on record where, if special car or train movements had not been made, production would have stopped at grievous cost. There are a great many cases where inability to deliver goods would have meant loss of sale.

Inventories must be kept down and space kept free from congestion. Traffic departments report "constantly advising of stock on hand"; "keeping production and stocks aligned with market requirements"; "watching stock on hand, and keeping proper amount of raw material on hand"; "arranging movement of materials inbound so as to meet schedules; very important as it requires close attention and carrier cooperation."

Concerning assistance in handling stores and stocks traffic departments report "storing finished and partly finished material," "furnishing monthly inventory of stocks," "keeping daily inventory of finished material," and "controlling finished goods, stock, and records"; and, with reference to the third form of assistance, industrial traffic managers say that they assist by "avoiding warehouse congestion by routing to avoid bunching," "supervising warehouses," "securing warehouse space," and through "cooperation with engineering and production departments in providing adequate storage and economical means of unloading materials into and from storage."

MATERIALS HANDLING AND PLANT TRANSPORTATION

Losses are sometimes the result of the manner in which internal movements and handling operations are supervised. Assistance is rendered by the traffic department either by actually handling such activities or by cooperating in their handling. An Indiana rubber-goods manufacturer reports:

> Cooperating with receiving department by having inbound cars placed when and where wanted to avoid unnecessary handling and interruption of manufacturing schedule.

The following services are also reported as being performed by various traffic departments: Handling and plant transportation of heavy raw materials, assisting in indoor or plant transportation administration, supervising switching service, supervising materials handled in intraplant movement, supervising track repair and yard storage, and transferring merchandise between departments.

MANUFACTURING

The close relation existing between production and traffic can be illustrated in different ways. One has to do with changes in the nature of goods manufactured. A Wisconsin traffic manager remarks:

> I want to call attention to the fact that up to four years ago approximately 40 per cent of this plant's production included all kinds of rubber mechanical goods while to-day we produce only tires, tubes, and rubber accessories.

Such a change calls for many classification and rate adjustments, changes in packing, billing, and various other traffic matters.

Production must often adjust itself somewhat to transportation conditions. The traffic department makes this possible. A Pennsylvania machinery company advises:

> One of the major services that our traffic department renders is in advising our engineering department the maximum sizes and weights that the railroads and steamships can handle to given destinations. This is necessary in our line of manufacture to avoid single pieces being made of such sizes that they can not be handled to desired destinations. This service entails a knowledge of all special classes of equipment obtainable from the railroads and the routes over which the maximum clearances obtain.

Actual production activities must be timed to fit in with assembling and transporting for further production. A factory may turn out structural steel for a building under construction at a distant point. The actual production of the building is carried on at scattered mills as well as at the site of the structure. A New York firm reports "difficulty of production department to produce and finish products on a schedule timed with regard to a common destination."

Among other statements showing production and traffic relations are the following: "Furnishing engineering department with data relative to changes in American Railway Association standards"; "outlining a daily plan of manufacture, to be conducted on most economical basis account of our thorough knowledge of milling problems"; "arranging and planning orders to be run by the mill, being practically in charge of operations"; "arranging transit privileges so items temporarily out of stock can be shipped in and reshipped out on orders, at minimum cost"; "periodical check of products, from traffic standpoint, to develop facts of importance to the production department"; and still others include expediting the completion of orders, outlining rate and classification requirements on products produced, checking production rate against shipping possibilities on proposed orders and contracts, and suggesting shop procedure to facilitate shipping.

Sometimes changes can be made when manufacturing or assembling articles for shipment that benefit transportation, such as the following:

> Improper or insufficient packing is not always the cause of damage, as is evidenced by shipments of radio cabinets from certain companies. These cabinets were arriving at the stores with split backs and panels broken. Upon bringing this condition to the attention of the manufacturer, a series of tests was devised which proved that the construction was too rigid. This was overcome by simply substituting nails for screws in the assembling.

A manufacturer of large pieces of machinery or of industrial goods requiring installation must arrange production schedules with transportation and erection in mind. An Indiana shipper writes:

> In a business such as this where about 60 per cent of the shipments are of specially manufactured material there have been cases, especially where early delivery was important, in which the most advantageous carloads could not be assembled and shipped at one time because of failure of the factory to arrange production schedules to fit. For example, if the factory has nothing for a particular job ready for shipment except large structural work, advantageous loading of cars can not be made; while, if small parts and large can both be ready at the same time, much more advantageous loading will be accomplished. Such waste does not now often occur, due to scheduling by the production department in such a manner that not only a logical order in erection is maintained but also a logical order in shipment.

PACKING

Another activity often handled by production departments, and regarding which the traffic department is vitally interested when not actually in charge, is the preparation of the shipment for safe and economical transportation. Packing is usually for this purpose only. One shipper reports waste due to "uneconomical packing," and others that such wastes are reduced or eliminated by "working closely with the production manager" and "using methods in packing resulting in the most favorable classification of goods."

That the traffic department should either have direct supervision over packing or work closely with the department that has, is the view expressed by many shippers. An illustration on the matter of jurisdiction over packing comes from a furniture factory:

> When our traffic department was organized in 1926 they had no voice in the selection of shipping containers or the preparation of goods for shipment. A recommended change by them in just one package not only saved nearly $5,000 per year but produced a container much more practical from every standpoint. This change resulted in the placement of the traffic manager on the crating committee of the production department with direct responsibility for passing upon any changes of any nature.

A large paint and varnish company further points out the intimate relationship that exists between the traffic and operating units:

> The production department was using a container that they thought complied with the railroad regulation. After the establishment of this (traffic) department the specifications were changed to comply with the regulations. This resulted in a saving of about one-third in the cost of the package, or some $7,000 to $8,000 a year.
>
> This matter was pursued still further by the traffic department. Intensive studies, tests, and experiments were made which resulted in an entirely new type of package being adopted. Steps were taken to have the package approved by the Interstate Commerce Commission. This was accomplished and the new package was used by most of our factories. The package used to-day carries the product with greater safety, has more advertising value, takes up much less storage space in our factories and warehouses, and in addition to all of these benefits the cost is but one-third of the cost of the containers used before the traffic department investigated.

Incidental to packing are the inspecting, checking, marking, and weighing operations. Traffic managers report assistance rendered the production department in these matters by "making a final inspection of product," "arranging average demurrage agreements," and "figuring and billing excess tare on rags used."

LOADING

The loading of cars, trucks, and boats, but particularly cars, is often delegated to the production department, although it is a physical-handling traffic function. Even where the traffic department does not supervise this work its assistance is invaluable.

Sometimes this cooperation deals with the assembling of small shipments into carloads under favorable conditions, as a Pittsburgh factory traffic department advises—"in some cases the production department could cooperate more in consolidating shipments into full carloads."

Not only in pool-car matters but in the actual physical loading and stowing can the traffic department offer assistance. By way of illus-

3864°—30——11

tration an aluminum smelting and manufacturing company points out that its—

> Method of bracing carload shipments caused considerable damage to load while in transit. Corrected by suggesting another method of bracing, which was adopted after careful study by the traffic manager and plant superintendent, resulting in shipments reaching customers in better condition.

Other ways in which traffic departments assist include suggesting better loading methods, loading weight minimum, loading cars so they will move toward their home line, working out better methods of loading to avoid loss and damage in transit, instituting reforms tending to bring about faster loading and unloading, requiring loading to full minimum to avoid paying freight on unused weight, and using dunnage material to reduce tare weight.

And, finally, as an iron and steel company points out, assistance is rendered even after loading by—

> Tagging outbound cars which are switched out before loading record has been properly checked against orders. This would result in delayed billing, rehandling into and out of plant, and increased loading costs.

ADVERTISING AND TRAFFIC DEPARTMENT RELATIONS

There are various ways in which a traffic department can assist an advertising department. First, by supplying general information. Traffic managers advise that they furnish "general detailed information (1) to guide advertising in markets; (2) on anything of benefit to their departments;" and "information concerning conditions in territory as reported by railroad officials."

Others report furnishing transportation rate and service information. The following are illustrative statements: "Rates, time of delivery, etc., to a section of the country where advertising is going on"; "rate conditions in various territories; rate data into territories where advertising campaign is planned"; "cost of distributing advertising matter"; "rates to be printed on price lists"; "classification of advertising matter to provide cheapest rates"; "properly classifying advertising material"; "loading schedules (goods on hand daily for shipment)"; "approximate date of arrival of advertising matter"; and "train schedules and delivery service."

Technical assistance is exchanged by these two divisions. Traffic managers report cooperating in the following matters: "Kind of labeling, printing, etc., that can be legally shown on containers and still carry lowest rates"; items of public interest furnished the editor of the newspaper"; "traffic thoughts that have an advertising appeal"; and "transportation publications in which to place advertising copy."

An Iowa chemical firm furnishes the following statement:

> On window-display folders used by our advertising department a rule was established with the classification committee whereby they would be accepted as fiber board inasmuch as they were not in the shape of boxes, thereby establishing the fiber-board rate with a higher minimum, which was acceptable.

Not only do traffic departments assist indirectly in handling advertising matters, but many report that they actually advertise the firm and its products through "providing distinctively painted and maintained automotive equipment that will attract favorable comment"; "placing advertising annually with trade journals"; "outside contacts with shippers' regional advisory boards and traffic committees"; and "securing quick delivery on a specific order to serve as an illustration to be used in advertising."

Finally, when it comes to the shipping of advertising matter and keeping down the cost thereof, traffic managers report "checking trade names of advertised articles against classification descriptions"; "routing advertising matter inbound; cooperation with advertising matter manufacturer"; "shipping advertising matter outbound"; distributing advertising matter; speeding up delivery when stocks are low"; "tracing goods to be used in advertising"; "handling exhibits, samples, circulars, advertising mail, and sample mailings"; and "determining the most advantageous or economical methods of distributing advertising matter."

A Chicago publisher and printer illustrates savings accomplished in shipping advertising matter:

> Formerly advertising matter was shipped separately to New York, Philadelphia, Boston, and Minneapolis, but under an arrangement made by the traffic department this printed matter, up to 5 per cent of the entire load, is placed in the cars and moves at the carload rate.

In the same way savings were made by another Illinois concern, which explains:

> Quite a large saving in transportation costs has been secured in taking advantage of the railroad Consolidated Freight Classification rule covering the 5 per cent allowance in weight for advertising matter forwarded in cars containing the products which it advertises. This matter is now distributed so that practically every car carries its advertising matter at the carload rate instead of paying the less-than-carload rate on the advertising matter as was done previously.

SALES AND TRAFFIC DEPARTMENT RELATIONS

The last major department to be considered in its relation to the traffic department is sales. No other department is in a position to benefit more from traffic cooperation than is the sales department. The two departments are forced to work together in many ways.

The relationships between traffic and sales may be classified and discussed under the six headings—consultation, research, information, services, customer relations, and selling.

CONSULTATION

Marketing policies may be divided quite equally between those of a physical movement and those of an exchange of ownership nature. It is, therefore, necessary that many selling policies be worked out in conference between the traffic and sales executives. Among the policies of mutual interest may be mentioned (*a*) who is to control the warehouse activities, (*b*) the extent that freight charges on shipments should be prepaid, (*c*) the basis upon which sales contracts should be made, and (*d*) the methods used and items considered when keeping cost accounts.

Warehouse distribution control.—A single case may serve to illustrate the first of these policy matters. It was a tire factory's practice, year before last, of leaving the warehousing functions under the

direct control of the sales department. Naturally, the sales people shifted warehouse districts and sales territories, and in so doing considered only sales convenience and gave never a thought to the effect such changes would have upon transportation costs. The traffic department found that in a number of cases this policy resulted in considerable waste in the cost of transportation; furthermore, the firm was not securing the best available transportation service following these shiftings.

A chart was prepared to illustrate the warehousing situation as it related to transportation and was presented to the general manager and the sales manager, with the result that, while many changes were made from that time on, the traffic department was always consulted before the existing warehouse and distribution plan was upset.

Prepayment of freight.—A Boston wholesale grocery concern illustrates another matter of mutual interest to these two departments—the policy of prepaying and bearing the costs of transportation to all territories in which the firm's products are marketed:

> A study of sales policy in regard to transportation prepayment showed certain points and territories which were not profitable and, consequently, the prepayment of transportation charges to these places was modified.

Basis of sales contracts.—The policy of a firm with reference to quoting prices involves the matter of delivery of goods. It is always a question—when not dictated by trade usage—whether f. o. b. factory or f. o. b. destination is preferable; also, who should bear the delivery charges and what allowances should be permitted in order to meet competitive prices.

Accounting practices.—Statistics and accounts are valuable aids in controlling business activities. When detailed accounts are kept concerning selling costs the problem of sales administration is simplified. A goodly portion of the accounts as now maintained in a majority of business houses do not segregate the cost of making physical delivery from the cost of salesmanship. The following statement is typical: "As to transportation expenses, no separate account is kept of the charges paid on manufactured products, which are included in the sales expense."

Physical-delivery costs can be broken down into detailed items. This tends to keep them visible so that sight will not be lost of their importance. When changes in transportation costs take place, they can be immediately noted and corrective measures promptly taken.

Traffic departments aid sales departments in the keeping of transportation accounts and in correcting matters relating to physical-delivery costs.

RESEARCH

The traffic department makes certain investigations and studies of benefit to the sales department. Sometimes these are undertaken on its own initiative—more often, perhaps, at the suggestion of the sales department. Matters studied cover a wide range. Some have to do with the kind of packing and the type of containers to use; others pertain to analysis of the competitive situation; and still others to the location of new markets and the ability to reach them. A large soap factory declares:

> Without intelligent traffic advice we would have put far too much sales effort in a territory where we could never compete on account of the freight-rate disadvantage.

A Missouri traffic manager illustrates this by saying:

> I have accomplished numerous reductions in rates on both the finished product and the raw material, as well as being instrumental in establishing a transit rate that has helped my firm meet their coast competitors.

A manufacturer located at Dubuque, Iowa, likewise reports:

> Greatest saving has been in securing equitable rates in advance of movement, thus permitting our quoting competitive prices and enabling us to secure business that would not otherwise have been available.

INFORMATION

In addition to acting in a consulting capacity and in making research studies for the sales division, traffic departments furnish information regarding transportation rates, routes, costs, profitable size of orders, service, new markets, the competitive situation, and other matters. Many replies submitted in this survey were to the effect that sales departments fail to ask for such information or fail to use it when it is provided, and, instead, often use unreliable and inaccurate information furnished by customers or carriers. The following statement is representative of many:

> A considerable amount of transportation waste is caused by sales departments authorizing shipments without advice from the traffic department as to (1) rates, (2) routing. (3) type of equipment to be used, (4) proper description of commodities, and (5) packing requirements.
>
> The traffic department is in continual touch with the above departments in an effort to eliminate such waste, and it is being kept to a minimum due to increasing cooperation with the traffic department.

The results of such failure sometimes are costly. For example, another firm advises:

> Just recently lack of cooperation between sales and traffic departments caused a neighboring plant to close down for two and one-half days awaiting tank cars to relieve congested oil storage.

New markets.—Not only is research carried on concerning the location and feasibility of markets that might be reached with profit by the sales department but information of this character is furnished to that department on request. The following quotations from questionnaire replies pertain to such information: "Directing attention of new sales people to names of former customers with which they are not familiar"; "opening new sales territory through institution of lower rates"; "making changes in territory of distribution from factories and warehouses on account of change in freight rates or in new service, etc."; "information as noted from checking rate changes in the dockets of carrier rate committees"; "names of prospects obtained from carriers for glass containers and cooperation with railways for proper classification of articles packed therein"; and "transportation conditions analyzed incident to location of proposed new stores."

Competitive situation.—Shippers report their traffic departments furnishing information to their sales departments as follows: "Rate comparisons"; "advise of competitors' transportation service situation"; "advantage or disadvantage in rates and services compared

with competitors' and how situation may be equalized by means of freight allowance"; "watching competitive situation in regard to current and proposed rates to see that no competitor receives advantage unfair to firm"; "keeping sales department informed as to competitive rates."

Rates.—The sales department is more interested in what the cost of delivery will be than in any other one item, as a Washington lumber mill explains:

> In selling on delivered prices, these prices varying according to the freight rate involved, the relationship between the traffic department and the sales department becomes doubly important. The furnishing by the traffic department of books showing rates to all destinations for the use of the sales department is an important function. This is true because the selling price, delivered at destination, is directly affected by the freight rate. If salesmen are not advised as to the lowest freight rate to all destinations, much business may be lost because of the price being higher than that of competitors.

Statements from shippers engaged in various other industries are that information is furnished "to salesmen, showing warehouse or factory from which stock can be forwarded most economically," and "for each city in salesmen's territories," regarding the "existence of special services and privileges—stopping in transit to partly unload—pool-car services, etc.," concerning "routing charts and schedules," "cost of holding cars in transit," "freight charges, to prevent dealers from adding excessive amounts," and rate statements of various kinds.

Routes.—Closely related to rates are the routes over which shipments must move. Shippers report their traffic departments active in assisting sales by furnishing this information for "consolidated cars," "economical movements," and for "unrouted sales orders." A Chicago porcelain-ware manufacturer advises of traffic "cooperation with our branches in the routing of their inbound material." A Toledo glassware manufacturer likewise points out:

> Each salesman has a freight rate book and is required to write into each order the freight rate from the factory to the customer, also the route of movement. Knowing the transportation cost and the route of travel is beneficial to him.

Service.—Information as to "the schedules of trains, trucks, and boats," "time required to make delivery," "location and time expected for shipments in transit," "proper description of shipments on bills of lading," and advising of "all shipments made into various sales territories," illustrate service matters concerning which sales-traffic cooperation is reported.

Orders and prices.—Information is furnished the sales department by the traffic department on matters of transportation involved in orders and their prices. A Chicago retail chain-store company reports:

> The contract division of our retail business never makes a quotation on large bids without first ascertaining not only the transportation costs from the source of supply but, if the shipments are to be made out of town, the exact cost of transportation to the ultimate destination. This practically eliminates losses on close quotations on large bids.

A furniture company further illustrates cooperation in regard to filling orders in this way:

> On each bill of material the consignee or prospective customer is given a delivered price. The freight portion of this delivered price is figured in this [traffic] department for the sales department.

The size of the order may or may not be economical from a transportation point of view. A Kansas City wholesale grocer reports "getting salesmen to make a big effort to secure larger-sized orders in order to overcome heavy minimum charges on small orders," and a New Mexico lumber company likewise advises:

> The other instance that may be cited is loss due to different minimum weights of carriers or rate territories, without which information the sales department would accept an order short of the minimum weight, resulting in payment of charges for dead weight.

The pooling of orders into pool cars and the elimination of handling by carriers and distributing warehouse result in savings credited to an aggressive New England traffic department, without increasing the cost of a highly competitive product to the customer:

> We are jobbers of school writing tablets. Our sales department encounters the keenest kind of competition for this business. Our margin of profit is small. The paper tablets are sold once each year, f. o. b. all major cities in the United States, and are shipped direct from manufacturing plant in pool cars. We absorb freight and transfer expense at distributing point. Consignees, under terms of sale, are obligated for freight from distributing point. Traffic department, after analysis of rates, finds direct less-than-carload rates from factory to all destinations in through pool-car territories cheaper than combination of carload to distributing point plus transfer expense and less-than-carload rates to final destination. Instructs direct shipment of each order, fully prepaying freight, and charges consignee exactly what he would pay from distributing point. Saves on these through cars alone $1,000 each year for the firm and eliminates unnecessary handling by carriers and warehouses.

Other traffic departments furnish information as to the pricing and handling of orders, "figuring out combination shipments"; "suggesting carload combinations"; "arranging mixtures so as to prevent rate penalties"; "advising of proper basis and mixing material in order to secure carload rates"; "quoting prices for goods f. o. b. certain points, shipping these in less-than-carload lots on reduced rate thus secured, and meeting competition"; "suggesting use of ferry cars, pool cars, and shipping in carload quantities"; "suggesting units of sale to insure lowest transportation cost and shipments reaching destination with as little handling as possible."

Costs.—The cost of freight and other transportation services incident to the delivery of a product requires the furnishing of technical information. This is not always available. As reported by one company:

> There was no dependable method of obtaining accurate transportation costs for use in quoting f. o. b. destination prices. Corrected by establishing a tariff file and furnishing sales department rate statements and surveys and furnishing individual rates and transportation costs as required.

A Chicago furniture factory warns, however, of waste due to the wrong use of cost information furnished. A sales department has need, it seems, for a proper understanding of the proper application of freight rates:

> The sales department would accept the freight rates and extend same on the weight of the unit package rather than consider the entire carload as a whole; as a consequence there was an underestimating of the transportation charges which amounted to considerable money per annum.

Regarding this sales-traffic relationship other shippers state: "Freight costs furnished on products"; "nonprofitable sales re-

ported due to transportation costs"; "furnishing cost of containers and transportation charges"; "responsible for marking the selling prices, reduced prices, and advance prices on all merchandise."

SERVICES PERFORMED

Not only do traffic departments work with sales departments by furnishing information of a wide variety but in actually handling matters. Such activities vary, depending upon the jurisdiction exercised by the traffic department. Concerning this, one shipper states:

> Traffic department jurisdiction covers all shipments after they are packed—arranges delivery to transportation company, attends to all correspondence in connection with shipping and freight allowances, and everything pertaining to traffic after the goods are packed.

Traffic departments report assisting sales departments in sales personnel matters, transportation services, rates, routes, packing, loading, tracing, expediting delivery, and distributing; also in auditing transportation items on sales invoices, handling passenger matters, handling export shipments, and disposing of waste.

Personnel.—While it is not expected that traffic departments can do much in the matter of managing salesmen, occasions for cooperative service do present themselves. One traffic manager reports acting as a "bumper between boss and salesmen to keep salesmen from resigning one week and from getting fired the next week," and another, that he "helps to retain salesmen."

Rates.—Not only is rate information furnished, but sometimes new rates are obtained or old ones reduced so as to improve sales. The adjustment of rates on outbound shipments is a vital part of almost every industrial traffic man's work.

One illustration only will be presented at this point. It is furnished by the former traffic manager of a southern lumber company:

> The company was offered an order for approximately 100 cars of wood pulp by a paper company at Bogalusa, La., whose own pulp mill had been destroyed by fire. The order was a most desirable one on account of the drastic embargoes in the East preventing shipment to that territory; but as no rate was available to Bogalusa, other than a prohibitive class rate, the order would not have been accepted had I not assured our president that eventually the transportation cost would be reasonable, as required by the interstate commerce act. The class rate was charged and formal complaint was filed with the Interstate Commerce Commission. Reparation to the amount of about $9,000 was allowed.
>
> If this concern had not employed a traffic manager it is obvious it would have declined the order when told by the traffic department of the railroad what the existing correct freight rate was to Bogalusa.

Shippers report traffic departments handling rate matters of the following kind in the interest of their sales departments: "Checking salesmen's expense accounts as to fares"; "study and recommendation of classifications to insure lowest rate"; "maintain equality with all competing points"; "arrange tariff amendments on transit arrangements on par with those put in territory for benefit of competing points"; "secured rates that are lower than those 'enjoyed' by uninformed competitors"; "secured transit privileges of benefit to sales"; "cost analysis of freight and express per dozen articles in each sales territory; landed costs."

Routes.—Evidence to the effect that either the traffic department is not given complete authority over the routing of sales orders or its instructions are not strictly followed is furnished by many shippers. A Wisconsin trunk manufacturer reports savings to the sales department by "allowing the traffic department to route all orders so as to connect with package-car movement." A Kansas City wholesaler points to the elimination of industrial wastes on orders by having his traffic department "properly bill and route to secure lowest rates."

A leather manufacturer furnishes the following interesting case:

> Our own sales stores in the East were specifying express service on their orders from stock to be shipped them on consignment for distribution to near-by customers. Time to destination was four to five days.
>
> Made a special arrangement with two carriers to have less-than-carload shipments, which constitute over 90 per cent of our shipments of finished products, trucked from station to station at junction point instead of moving in trap cars. Time in transit of freight shipments was reduced to seven days, so volume of express shipments was considerably reduced. Resultant savings approximate $1,000 per month.

From Florida a traffic manager outlines his practices in connection with routing services for the sales department:

> By calling attention to routing where lower rates are available and by furnishing specific routing instructions on orders and requiring rate to be shown in the bill of lading we insure the protection of lowest published rate. This practice is also for the purpose of—
>
> 1. Reducing overcharge claims to a minimum, because our experience is such that we are better informed in the matter of rates and routing on lumber than the average railroad agent, and on shipments so tendered the responsibility rests with the initial line to protect the lowest rate available via bill-of-lading route or otherwise.
> 2. Specific intermediate routing is valuable to the buyer or consignee, as it enables him to intelligently reconsign a car or place a turnover order with the delivering line, which is quite generally done, especially if the buyer is engaged in the wholesale lumber business.
> 3. Specific routing also effects an actual financial saving to both the buyer and the seller in a majority of cases when the stock is urgently needed, as the consignee will trace the car from his end instead of wiring the shipper to ascertain route, trace, advise location, etc.

A Kansas City grocery company has experienced losses due to its sales department "shipping by freight small orders that would have gone cheaper by parcel post or express," and a Massachusetts paper mill has found "salesmen have ordered shipments returned without inquiring as to proper classification or routing."

Packing.—There is a close connection existing between the sales and traffic activities relative to containers and packing. This is illustrated by the following statement from a paint and varnish manufacturer:

> The sales department specialized on a certain kind of package which was classified third class less-than-carload. Investigation by the traffic department resulted in the adoption of a 5-gallon drum for this material which was classified fourth class less-than-carload. More than $20,000 per year in transportation charges is saved through the reduced rate and the difference in the tare weight of the package and in the cost of the package itself.

A New Jersey clay producer offers the following case:

> The undersigned has personally known of large monetary losses due to sales department employing a new container for a liquid commodity without the sanction of the traffic department. Due to the insufficiency of the container

the product shipped was totally or partially lost in transit, the container was a total loss, and this sometimes resulted in alienating the customer. Also, I have known sales departments to allow deductions in invoices for shipments reported damaged at destination without investigation by the traffic department.

Loading.—The pooling of orders has been touched upon as helpful to sales economy. Consolidation of shipments may again be mentioned. A Kansas City engine works encounters waste due to "making sales not favorable to consolidating shipments into carloads to a distributing point." A wholesale drug company likewise reports:

Shipment at less-than-carload rates of three carloads within one week to one consignee which should, of course, have been consolidated and could perfectly well have been. By consolidation about 50 per cent of the freight could have been saved.

Various statements from shippers, pointing to loading services of their traffic departments advantageous to sales departments, include combining "less-than-carload shipments into trap cars and routing same to most advantageous points to improve service and insure retaining customer's business," "selecting points to which pool cars are loaded," and "supervising loading."

Tracing and expediting.—Locating goods that are in transit to destination, advising customers and sales department when shipments may be expected, taking steps to speed consignments along, handling reconsignments and divisions—these and various other similar services are performed by traffic departments in the interest of sales departments. Representative statements on these matters follow: "Outbound orders expedited"; "tracing outbound orders for rapid movement and specifying trains in which railways are to handle cars and materials for speed and dependable deliveries"; "advising when delivery is expected"; "diverting cars promptly"; "speeding up delivery of dry goods for special sales."

Delivery.—Disposition must be made of goods sold and for some reason not delivered to purchaser at destination. A New Jersey automobile manufacturer states that his "company saved money by traffic department cooperating with sales department as to diversion of unclaimed shipments," and the traffic department of another shipper tells of "cooperating with sales and order departments by inducing consignee to accept refused and unclaimed shipments."

Distributing.—Economical marketing calls for economical physical distribution. Traffic is intertwined with selling in this matter. The following statements from shippers illustrate traffic-sales relations along this line: "Exercising 95 per cent of control over distribution policies"; "dividing sales territory served from each plant"; "arranging for wholesale distribution service"; "maintaining an extensive physical-distribution system"; "locating new warehouses"; "advising on the selection of sites for distributing yards"; "keeping branches supplied during sales campaign"; "charting warehouse distribution"; "suggesting proper locations for distributing plants"; "transferring material from one sales department to another."

Auditing invoices.—Sales invoices contain transportation items which may look all right to the sales department, and even to the auditor, but may be filled with errors to the disadvantage of either the seller or the buyer. This necessitates their being checked by the traffic department. One shipper points out:

That [automatically bringing errors to light through a recheck of all transportation bills] gives our relation to the sales department from the standpoint of actual handling. The matter of freight-rate adjustment is a proposition by itself.

A Memphis cotton-brokerage concern widens the scope of this work by the following illustration:

Occasionally our sales department, without notifying the traffic department, sells locally cotton on which we hold transit freight bills, which should be transferred to the buyer, resulting in freight bills not being billed to the buyer. These freight bills have refund value of about $2.50 per bale.

Passenger matters.—Illustrations of assistance rendered the sales and other departments on passenger matters are outlined in connection with the personnel department's relations to traffic (p. 142). These have to do with such matters as "routing salesmen," "purchasing tickets," "preparing itineraries of best train connections," "checking trunks in advance," "wiring for information of train arrivals," "upon being furnished list of towns and time to be spent in in each by sales manager and assistants, preparing itineraries," and "purchasing tickets and routing men so as to save their time for the sales work."

Not only are the above matters of research, information, and service handled with reference to domestic shipments but for goods sold overseas as well.

Waste disposal.—Regarding the disposal of waste, one traffic manager writes, "We watch accumulation of scrap material, etc., and report same to sales department whenever a carload is available," and another has "arranged for sale and distribution of our waste ashes from the gas producer where formerly the railroad company was paid for disposing of the same and of other items of a similar nature."

Waste may consist of scrap, ashes, empty packing cases, waste paper, excelsior, shavings, sawdust, cinders, or other matter which has little or no value and no further use at the plant. It may be sold or it may have to be transported away at a loss. Traffic departments everywhere are found actually selling such material and arranging for its removal.

CUSTOMER RELATIONS

One of the most frequently mentioned services rendered sales departments by traffic departments is in connection with the promotion of good relations between the firm (as represented by the sales department) and customers. Sales promotion can be accomplished in no better way. An operator of a clay mine goes so far as to state: "The traffic department of these companies is primarily maintained as a service department for the customers, although rate adjustments are agitated and other branches of transportation are not overlooked."

But more often traffic service of some kind is furnished customers. It may be general in scope and pertain to all sorts of traffic matters or it may be confined to one or two such matters as routing, tracing,

auditing freight bills, filing loss and damage claims, quoting or adjusting rates, unloading, scheduling reshipments, handling unclaimed shipments, or securing an increase or a general improvement in the transportation services rendered by the carriers.

Routing.—A St. Joseph, Mo., department-store traffic department serves its sales division "by giving our customers advantage on all outbound shipments in classifying and routing their shipments to their best interests." A Wisconsin candy manufacturer states there are—

> Instances where customers demand quick service, compelling truck deliveries. By obtaining their cooperation in anticipating their requirements one or two days ahead, we have eliminated this expense, so that this merchandise can be handled in trap cars from our factory, without cost to us as regards hauling.

Another interesting illustration on this matter follows:

> It appeared to be the custom to ship less-than-carload freight to various large customers as fast as it could be prepared. Inquiry developed that this was done to give better service to the customer. The traffic department investigated and discovered that in many instances carloads would give better service at cheaper rates. In other cases motor truck was faster and more economical. Each situation was handled until much waste of money, time, and equipment was saved.

Tracing and expediting.—By rendering better service, by showing a willingness not only to sell promptly but to deliver promptly, business is retained or secured. Sales are also retained by a business that is in a position to properly explain the reasons for loss, damage, or delay. A Detroit cement mill reports increasing the sales of its products "by tracing cars through to destination and giving better delivery service than competitors that do not maintain a traffic department."

The holding of business is claimed due to obtaining quicker transportation. The traffic department traces shipments in transit and eliminates waste, which enables the company to secure and hold business because the customer receives the benefit of quick transportation service. A Boston manufacturer recounts:

> Customers have often blamed the firm for delays really due to some error of the carrier, such as wrong car loading. Immediate action and a frank explanation has helped materially to hold their trade.

Overcharge claims.—The audit of transportation bills for the customer is reported as well worth the effort and cost expended because of the improved customer relations resulting. One concern writes:

> We feel that we do much more for our customers than the average shipper in that not only do we insure prompt and safe delivery of all merchandise at the lowest possible transportation charge through our consistent study of shipping containers, packing, serviceable routes, and rates, but we actually show the correct freight charge on the bill of lading covering each and every shipment, thereby insuring the correct freight charges. We also handle claims, make recommendations, and handle traffic matters for any of our customers who require this service, and by so doing have strengthened our good will materially and have made many new customers as well.

Loss and damage claims.—Working closely with customers whenever damaged or lost shipments are reported is important, not only when the shipper is at fault, but also when the carrier is believed liable. A furniture factory reports:

> Not only are the claims handled direct with the railroad for settlement, but satisfactory adjustment is made with the customer, and all correspondence pertaining to loss and damage and overcharge claims are handled by this department until conclusion. If not adjusted properly and handled satisfactorily, this would reflect on future sales.

From scores of shippers various additional statements are at hand to indicate the character of the traffic department's relations with customers. The following are representative: "Handle all dealings with customer after sale is made"; "help in solving customer's traffic problems"; "giving special service to customers in every phase of traffic, and consider it very important"; "giving customer service in regard to adjustment and collection of claims on our goods, preparation of claims, proper methods of unloading, most economical combinations of cars to be ordered from transportation-cost standpoint, by handling reshipment of unclaimed goods sold by dealers, and by furnishing schedules showing most economical combinations for reshipping our products"; "adjusting customer complaints relative to damaged goods"; "adjusting customer transportation differences"; "proper contact maintained with traffic and receiving department of customers, and keeping regular customers satisfied"; "expediting customers' goods"; "adjusting of loss and damage account direct with customer, together with all correspondence pertaining thereto"; "making suggestions, from time to time, regarding the betterment of service to customers, thus promoting sales"; "carrying on a direct correspondence with customers, which has built up a spirit of friendship"; "solved certain rate and classification problems for jobbers, with the result that they have confidence in the firm's ability and willingness to take care of them"; "adjusting any complaints salesmen develop as to service or delay."

Because these services can not well be measured in dollars and cents their importance often is overlooked. As stated by a chemical and smelter organization:

> While the results of many of the traffic activities are intangible, in that their value can not be segregated and does not appear in the accounts, they do contribute in a large measure to the success of the organization by insuring transportation service that will satisfy the customers and help build up and hold their good will at a minimum of cost.

SELLING

Just as it has been pointed out that certain traffic managers handle some of the work of the other departments, such as finance, purchasing, production, and executive, so is it found in selling. Actual sales and sales promotional work, usually indirectly related to transportation in some way, are aided by traffic departments. One traffic manager reports: "Traffic executive is a member of the business development committee of the company and spends larger part of his time on this work." Another writes that he is "assisting the promotional department in promoting sales with the transportation companies."

Traffic cooperation or assistance usually is in connection with sales with the carriers—but sometimes also with other industries as customers. Hence, traffic managers tell of "sales-promotion work with other industrial traffic managers," and of "activities with customers" and contacts with others.

While instances of traffic departments selling refuse, salvaged goods, and "disposing of refused freight shipments" are more or

less common, the greatest traffic efforts in this direction are undoubtedly expended on the railroads—by either furnishing information or assistance to the sales departments concerning them or by actually making the sales.

The amount of assistance and cooperation and the closeness of relations between the traffic and sales departments, as between any other two departments, depends largely upon the personal equation. A traffic executive located in the Southeast has stated:

> Some years ago I resigned as general freight and passenger agent of a railroad to accept the position of traffic manager for a large sawmill. * * * There was no lack of cooperation by the sales department, as the sales manager was my former superior with the railroad and was instrumental in getting the position for me.

With a complete understanding on the part of other department heads of the traffic department and its possibilities for service, the best interdepartmental relations may be expected.

APPENDIX

TRAFFIC, TRANSPORTATION, AND SHIPPING TERMS DEFINED

The following terms are used in this report to convey the following meanings:

Bulk goods. Commodities without packing transported via railway, waterway, highway, and pipe-line carriers, as well as via materials-handling facilities for plant transportation.

Business concern, firm, institution, establishment. An individual firm of a private nature which may be classified as a producer, industry, manufacturer, or commercial house.

Carriers. Transportation companies doing a common-carrier or contract-carriage business. They are operated and owned by companies selling services of a transportation, handling, and/or storage nature or of a special allied character. They may be illustrated by railroad, steamship, truck, cartage, pipe line, airplane, express, freight forwarding, and warehouse companies.

Commerce. The marketing (purchase and sale) and the traffic in and transportation and storage of goods. It is used in the same way as "distribution."

Commercial concern. A business firm of the "distributive" type, such as a wholesale, retail, jobbing, commission, brokerage, distributing, contracting, outfitting, marketing, or furnishing dealer or merchant, that acts as a middleman in the purchase of commodities produced, manufactured, or marketed and sells to other marketers or direct to consumers.

Communication. The sending and receiving of messages, the transmission of intelligence, or the movement of ideas by mail, telegraph, telephone, cable, radio, or messenger.

Delivery department. That division of a business organization delegated with the actual supervision and operation of local physical distribution of outbound shipments usually via highway in motor, electric, or horse-drawn trucks, or motor-cycle side cars, or bicycles, or by messenger; also via express and parcel post and freight to a limited extent. Such a department may or may not be independent of a traffic department. The cartage, trucking, and local hauling activities are not necessarily identical with those of a delivery department. Commonly established by department stores, dairies, laundries, bakeries, and fuel, ice, and similar concerns having a large amount of local sales.

Distribution. The buying, advertising, selling, and transporting of commodities, as differentiated from the production, manufacture, or consumption of commodities. As used it is synonymous with "commerce."

Express. Goods of practically every size and character, like freight, transported by railway, waterway, highway, and airway carriers and handled under separate management, usually by independent organizations known as express companies. The service is characterized as faster, more expensive, and given more personal attention than freight.

Freight. Goods transported by railway, waterway, highway, and airway carriers, in their freight service.

Industrial or manufacturing concern. A business enterprise of the "derivative" type, such as a mill, plant, tannery, factory, refinery, finisher, roaster, converter, furnace, foundry, canner, or some other business that changes the nature of the commodity handled.

Mail. Letters, documents, and other types of small-package goods transported by railway, waterway, highway, and airway carriers as agents of the United States Post Office Department.

Marketing. Restricted here to the buying and selling phases of distribution.

Materials handling. Represents the act of moving goods, in bulk, in packages, and in pieces. It is transportation as commonly used within a plant, yard, factory, warehouse, elevator, wharf, dock, pier, or station. It represents short-distance movements via such facilities as conveyors, cranes, electric and hand trucks, tractors and trailers, wheelbarrows, and shovels.

Plant transportation. The handling, moving, lifting, stacking, and shifting about of materials and commodities within the yards and buildings of an industrial or commercial concern by such facilities as trucks, tractors and trailers, cranes, belts, conveyors, elevators, tubes, pipes, cables, and railways.

Producer. A business enterprise of the "extractive" type, such as a mine, pit, quarry, farm, or ranch; a fishing, logging, or timber concern; or a grower or raiser.

Receiving department, receiving room. That division of the activities of a business organization delegated with the receiving, checking, unpacking, physical handling, and paper work incident thereto, for inbound shipments of freight, express, and parcel-post matter. Sometimes a part of the shipping department.

Shipper. The business man or the firm that not only forwards consignments by the various classes of carriers, but also receives them. In other words, the term is used in its broadest sense to represent the consignor *and* the consignee of freight, express, and mail traffic.

Shipping. The physical act involved in documenting, packing, crating, and otherwise preparing and forwarding goods. It is often used in business in a more general way, either in place of "traffic" or "transportation." In England it refers specifically to "transportation via water," and particularly "via coastwise and ocean vessels." "Shipping" is sometimes used to represent the opposite of "receiving."

Shipping department, shipping room. That division of the activities of a business organization often delegated with the packing, marking, and physical handling, and more often with the paper work, incident to forwarding outbound shipments of freight, express, parcel post, and sometimes other mail matter. This work is common to nearly all concerns. It is performed regardless of whether or not there is a modernly organized traffic department, to which it may or may not report.

Storage. The holding of goods either in an "open yard" out of doors, or "protected" under the cover of a warehouse, elevator, shed, or house. Storage, as used in this report, is related to traffic in being considered as "transportation temporarily arrested."

Traffic. The movement of goods, people, or ideas (messages); more particularly, the handling of goods which are also termed "freight," "express," or "mail matter," when in the form of shipments, or when transported by carriers.

Traffic department. That division of a business organization delegated to look after the physical and the administrative transportation matters. These duties vary with nearly every industry, as well as with the individual concerns in each industry; but they may be briefly and broadly designated as the mental and physical functions having to do with traffic, transportation, shipping, storage, communication, and materials handling. In many business concerns the term is used for, and in place of, "transportation department," "shipping department," or "delivery department." Strictly speaking, traffic functions are administrative and do not cover the actual physical handling—transportation itself.

Traffic management. See p. 8.

Traffic manager. See p. 8.

Transportation. The physical act of moving goods or people. The actual work incident to the hauling by hand trucks or motor trucks or the shipping by airplanes, railways, or steamers. A broad use of the term includes all traffic, storage, communication, and shipping matters, but the word is not so used herein.

Transportation department. That division of a business organization delegated with the actual supervision of the operation of transportation equipment. In some organizations it includes the mental traffic functions as well as those of a strictly physical transportation nature, and means "traffic department."

QUESTIONNAIRE NO. 1.—INDUSTRIAL TRAFFIC-MANAGEMENT SURVEY

1. General information:
   - (*a*) Name of firm_____
   - (*b*) Address_____
   - (*c*) Nature of business_____
   - (*d*) Number employed_____
   - (*e*) Number of plants_____
   - (*f*) Number of warehouses_____
2. Total expenses of your firm in 1927, for:
   - (*a*) All items and accounts_____
   - (*b*) Transportation (rail, water, truck, mail, storage, communications, express, etc.)_____
   - (*c*) Traffic and transportation administration_____
   - (*d*) Packing and shipping containers_____
   - (*e*) Plant transportation and materials handling_____
3. Money returns from traffic administration in 1927, as follows:
   - (*a*) Overcharge claims_____
   - (*b*) Loss and damage claims_____
   - (*c*) Classification, rate, and tariff adjustments_____
   - (*d*) Steamship, cartage, and warehouse contracts_____
   - (*e*) All other returns_____
4. Position of your traffic department:
   - (*a*) Is is considered and treated as a major activity?_____
   - (*b*) Is it independent, reporting to the president, vice president, or general manager? (Or to what officer does it report?)_____
   - (*c*) Is the general traffic manager a member of your firm's executive committee or board?_____

3864°—30——12

5. Does your traffic department cooperate with the following departments in the matters listed below? Answer "yes" or "no." (Please furnish any additional data.)

(*a*) Executive department:
- (1) By notifying of pending advances or reductions in rates?_____
- (2) By suggesting action to curtail disadvantageous traffic activities and threatened legislation?_____
- (3) By suggesting heavier car loading or other programs?_____
- (4) By_____

(*b*) Accounting department:
- (1) By auditing freight, express, mail, and handling-service bills?_____
- (2) By_____
- (3) By_____

(*c*) Legal department:
- (1) By preparing rate-case evidence?_____
- (2) By assembling loss and damage case evidence?_____
- (3) By appearing before commissions?_____
- (4) By_____

(*d*) Production department:
- (1) By recommending changes to reduce packing costs?_____
- (2) By advising of economical methods of materials handling?_____
- (3) By preventing plant shutdown through car supply and movements?_____
- (4) By_____

(*e*) Personnel department:
- (1) By facilitating the passenger movement of employees?_____
- (2) By handling passenger reservations and household-goods matters?_____
- (3) By_____

(*f*) Purchasing department:
- (1) By expediting the movement of inbound materials?_____
- (2) By analysis of rates to indicate most advantageous purchasing territories?_____
- (3) By consolidating less-than-carload purchases into carload shipments?_____
- (4) By_____

(*g*) Sales department:
- (1) By furnishing salesmen books quoting rates in their territory?_____
- (2) By reducing rates and extending marketing areas?_____
- (3) By pointing out most advantageous sales territories from traffic standpoints?_____
- (4) By_____

(*h*) Advertising department:
- (1) By advising of goods on hand in stock prior to advertising?_____
- (2) By_____

(*i*) Credit, order, or other department:
- (1) By cooperating in the use of negotiable documents?_____
- (2) By suggesting consolidations into large containers and carloads?_____
- (3) By_____
- (4) By_____

(*j*) Remarks:
(Add on a separate sheet any additional forms of cooperation.)

6. Industrial waste.

(*a*) Can you furnish any cases, drawn from your own personal experience, to show waste that has resulted, due to a lack of cooperation between the traffic and other departments (production, purchasing, sales, accounting, executive, advertising, etc.)?
(Reply in some detail on a separate sheet, and attach.)

(*b*) Can you cite specific details concerning any wasteful traffic or shipping practices that have come to your attention, and the methods that could have been adopted to avoid such losses?
(Reply in as much detail as desirable on a separate sheet, and attach.)

(*c*) Can you give any concrete illustrations of waste that would have resulted to your firm from a lack of good traffic management, and state how they were averted?
(Reply in sufficient detail on a separate sheet, and attach.)

QUESTIONNAIRE NO. 2.—INDUSTRIAL TRAFFIC-DEPARTMENT SURVEY

I. General Information

1. Name of firm_____
2. Address_____
3. Nature of business_____

II. Traffic Organization

1. Do you maintain a traffic department?_____
2. If not, what employees are responsible for traffic duties?_____
3. Do you maintain a transportation department distinct from your traffic department?_____
4. Do you maintain an independent delivery department?_____
5. Do you maintain any separate transportation or shipping departments other than the above?_____
6. If you do not have a traffic department, please give reasons:_____
7. Please furnish a chart or plan of your organization, if one is available, together with the following information:

Titles of traffic, transportation, and shipping employees	Number holding title	Range of salaries	General nature of duties	To whom responsible

Attach additional sheet, if necessary.

III. Traffic Functions

Instructions:
- (A) Check (V) the duties, listed below, over which your traffic department has complete jurisdiction and actual supervision.
- (B) Show an (A) after the duties over which your traffic department exercises only an advisory control, and insert the name of the department or official directly in charge.
- (C) Show a dash (—) after duties not handled in your firm.
- (D) Insert any additional traffic, transportation, or shipping duties handled by your traffic department or by another department.

Traffic functions	How handled	
	By traffic department	By what other department
ADMINISTRATIVE		
1. Recommending proper location for distributing and manufacturing		
2. Advising heads of other departments re shipping policies		
3. Contacting with local, State, and national trade and traffic associations		
4. Cooperating with the officials of carriers and service concerns		
5. Keeping informed concerning current business and legal changes affecting the firm's shipping		
LEGAL AND REGULATORY		
6. Detecting rate and service discriminations and illegalities		
7. Assembling evidence for rate and service cases		
8. Filing informal, formal, and special-docket complaints		
9. Practicing before carrier and governmental bodies		
10. Preparing and filing briefs for traffic cases		
11. Detecting, preparing, and collecting loss and damage claims		
12. Participating in loss and damage court cases		
13. Intervening in rate and service cases		
14. Participating in local, State, and Federal legislative matters		

Traffic functions	How handled	
	By traffic department	By what other department
CLASSIFICATIONS, RATES, TARIFFS, AND CHARGES		
15. Maintaining tariff files		
16. Preparing rate tables		
17. Quoting rates		
18. Analyzing and comparing rates and tariffs		
19. Auditing freight and other transportation bills		
20. Collecting overcharges		
21. Preparing classification schedules		
22. Preparing rate-case exhibits		
23. Securing, retaining, and preventing classification adjustments		
24. Securing, retaining, and preventing rate adjustments		
25. Obtaining new freight rates		
26. Obtaining revisions in tariff rates and regulations		
27. Obtaining transit privileges		
28. Arranging for special services		
29. Making ocean space contracts		
30. Making cartage and trucking arrangements		
31. Entering into warehouse contracts		
FACILITIES ADMINISTERED		
32. Packing room		
33. Shipping room		
34. Receiving room		
35. Warehouses, elevators, yards, and storage areas		
36. Plant transportation and handling facilities		
37. Industrial railway		
38. Private locomotives, cars, tracks, etc		
39. Floating and marine equipment, docks, etc		
40. Pipe lines and/or airplane lines		
41. Pneumatic carriers		
42. Telegraph and telephone		
43. Motor vehicles, horses, trucks, wagons, garages, stables		
SERVICES HANDLED		
44. Storage and warehousing		
45. Materials handling		
46. Railroad transportation		
47. Steamship, barge, and lighterage transportation		
48 Highway (long-distance and local) transportation		
49. Communication (telegrams and telephones)		
50. Messenger service		
51. Mail service		
52. Parcel-post shipments		
53. Express shipments		
54. Passenger matters		
55. Import and export shipments		
56. Selecting and securing proper packing materials		
57. Assembling, packing, and marking		
58. Car ordering, inspecting, and preparing		
59. Loading, stowing, checking, sealing		
60. Booking cargo space		
61. Preparing shipping documents and billing		
62. Routing shipments		
63. Pooling orders and consolidating shipments		
64. Tracing and expediting shipments		
65. Unloading, unpacking, and checking		
66. Disposing of packing containers and materials		
67. Arranging for average demurrage, credit, weighing, and side-track agreements		
ADDITIONAL DUTIES		
68.		
69.		
70.		
71.		
72.		
73.		

○

Date Due

SEP 27 1951 10/11
Dec 1 '51 12/15
OCT 20 1952
OCT 21 1952
OCT 27 1952

235 B98
Cop. 1
Butterbaugh
Industrial traffic
management...

Eastbankland
186 Linden Blvd
Brooklyn, NY
Dec. 14
DEC 7 1931

APR 26 1932 Res. - FEB 4 1938
W. A. Hoffman
447 Chestnut St
Nutley, NJ
10/11
Dec 1 '51 J R Bates SCATES
12/15 520 W 114 W.52

MSH 02804
AUG 10 1994 NEH

COLUMBIA UNIVERSITY LIBRARIES
0041396790

R 11 1931

END OF
TITLE